

10/633,890 searched 12-3-04

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LOGINID: ssspta1712mxf

PASSWORD :

TERMINAL (ENTER 1, 2, 3, OR ?):2

* * * * * * * * * * * * * * * Welcome to STN International * * * * * * * * * * *

NEWS 1 Web Page URLs for STN Seminar Schedule - N. America
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NEWS 3 SEP 01 INPADOC: New family current-awareness alert (SDI) available
NEWS 4 SEP 01 New pricing for the Save Answers for SciFinder Wizard within
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NEWS 5 SEP 01 New display format, HITSTR, available in WPIDS/WPINDEX/WPIX
NEWS 6 SEP 27 STANDARDS will no longer be available on STN
NEWS 7 SEP 27 SWETSCAN will no longer be available on STN
NEWS 8 OCT 28 KOREAPAT now available on STN
NEWS 9 NOV 18 Current-awareness alerts, saved answer sets, and current
search transcripts to be affected by CERAB, COMPUAB, ELCOM,
and SOLIDSTATE reloads
NEWS 10 NOV 30 PHAR reloaded with additional data
NEWS 11 DEC 01 LISA now available on STN

NEWS EXPRESS OCTOBER 29 CURRENT WINDOWS VERSION IS V7.01A, CURRENT
MACINTOSH VERSION IS V6.0c(ENG) AND V6.0Jc(JP),
AND CURRENT DISCOVER FILE IS DATED 11 AUGUST 2004

NEWS HOURS STN Operating Hours Plus Help Desk Availability
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NEWS WWW CAS World Wide Web Site (general information)

Enter NEWS followed by the item number or name to see news on that specific topic.

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FILE 'HOME' ENTERED AT 09:55:54 ON 03 DEC 2004

FILE 'REGISTRY' ENTERED AT 09:56:03 ON 03 DEC 2004
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10/633,890 searched 12-3-04

Property values tagged with IC are from the ZIC/VINITI data file provided by InfoChem.

STRUCTURE FILE UPDATES: 1 DEC 2004 HIGHEST RN 791553-15-6
DICTIONARY FILE UPDATES: 1 DEC 2004 HIGHEST RN 791553-15-6

TSCA INFORMATION NOW CURRENT THROUGH MAY 21, 2004

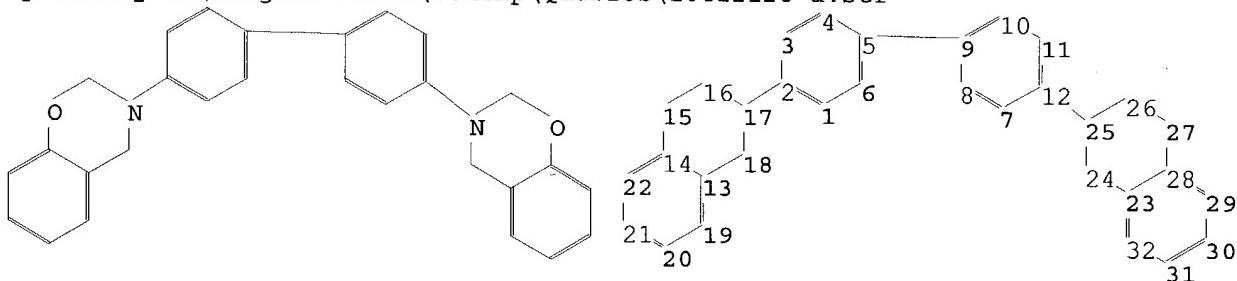
Please note that search-term pricing does apply when conducting SmartSELECT searches.

Crossover limits have been increased. See HELP CROSSOVER for details.

Experimental and calculated property data are now available. For more information enter HELP PROP at an arrow prompt in the file or refer to the file summary sheet on the web at:
<http://www.cas.org/ONLINE/DBSS/registryss.html>

=>

Uploading C:\Program Files\Stnexp\Queries\10412126 a.str



ring nodes :

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
24 25 26 27 28 29 30 31 32

chain bonds :

2-17 5-9 12-25

ring bonds :

1-2 1-6 2-3 3-4 4-5 5-6 7-8 7-12 8-9 9-10 10-11 11-12 13-14 13-18
13-19 14-15 14-22 15-16 16-17 17-18 19-20 20-21 21-22 23-24 23-28 23-32
24-25 25-26 26-27 27-28 28-29 29-30 30-31 31-32

exact/norm bonds :

2-17 12-25 13-18 14-15 15-16 16-17 17-18 23-24 24-25 25-26 26-27 27-28

exact bonds :

5-9

normalized bonds :

1-2 1-6 2-3 3-4 4-5 5-6 7-8 7-12 8-9 9-10 10-11 11-12 13-14 13-19
14-22 19-20 20-21 21-22 23-28 23-32 28-29 29-30 30-31 31-32

Match level :

1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom 9:Atom 10:Atom
11:Atom 12:Atom 13:Atom 14:Atom 15:Atom 16:Atom 17:Atom 18:Atom 19:Atom
20:Atom 21:Atom 22:Atom 23:Atom 24:Atom 25:Atom 26:Atom 27:Atom 28:Atom
29:Atom 30:Atom 31:Atom 32:Atom

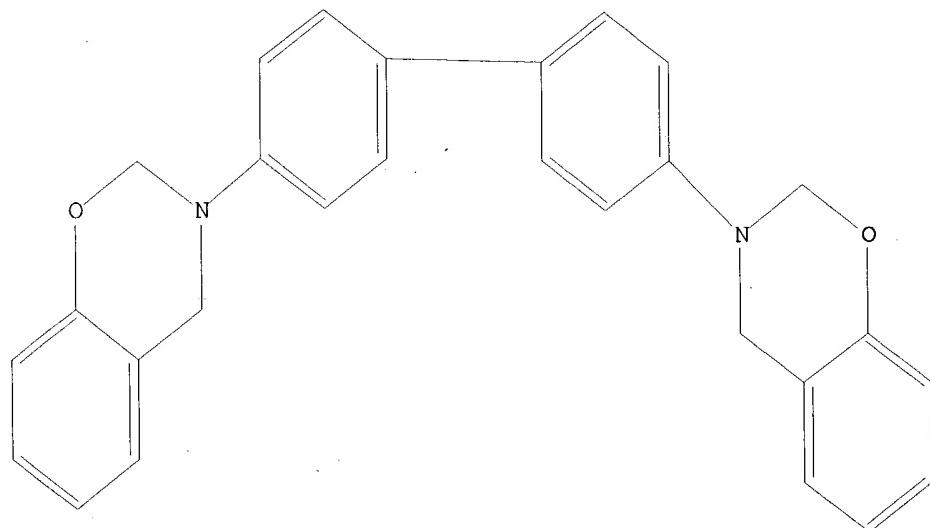
10/633,890 searched 12-3-04

L1 STRUCTURE UPLOADED

=> d 11

L1 HAS NO ANSWERS

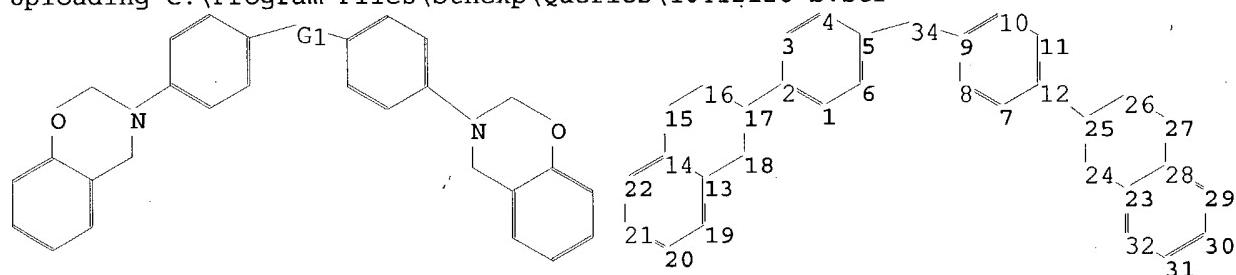
L1 STR



Structure attributes must be viewed using STN Express query preparation.

=>

Uploading C:\Program Files\Stnexp\Queries\10412126 b.str



chain nodes :

34

ring nodes :

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
24 25 26 27 28 29 30 31 32

chain bonds :

2-17 5-34 9-34 12-25

ring bonds :

1-2 1-6 2-3 3-4 4-5 5-6 7-8 7-12 8-9 9-10 10-11 11-12 13-14 13-18
13-19 14-15 14-22 15-16 16-17 17-18 19-20 20-21 21-22 23-24 23-28 23-32
24-25 25-26 26-27 27-28 28-29 29-30 30-31 31-32

10/633,890 searched 12-3-04

exact/norm bonds :

2-17 5-34 9-34 12-25 13-18 14-15 15-16 16-17 17-18 23-24 24-25 25-26
26-27 27-28

normalized bonds :

1-2 1-6 2-3 3-4 4-5 5-6 7-8 7-12 8-9 9-10 10-11 11-12 13-14 13-19
14-22 19-20 20-21 21-22 23-28 23-32 28-29 29-30 30-31 31-32

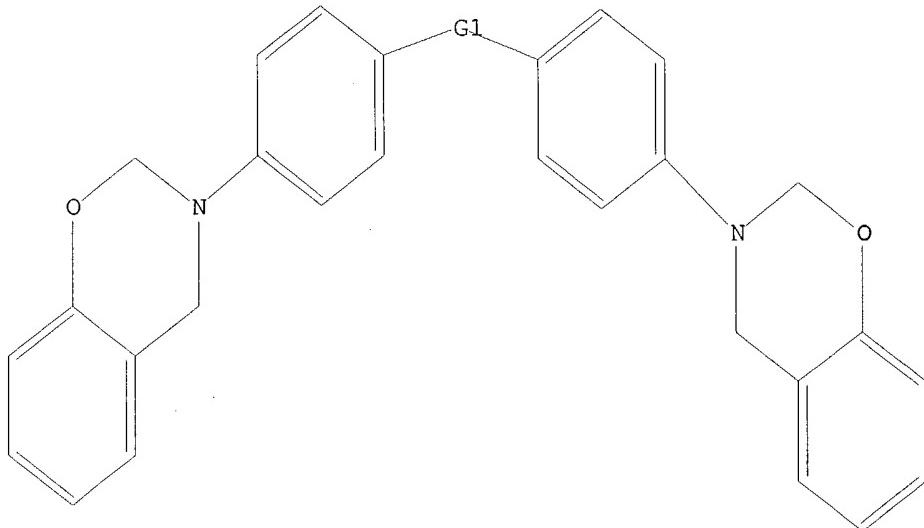
G1:O,S,SO2,Ak

Match level :

1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom 9:Atom 10:Atom
11:Atom 12:Atom 13:Atom 14:Atom 15:Atom 16:Atom 17:Atom 18:Atom 19:Atom
20:Atom 21:Atom 22:Atom 23:Atom 24:Atom 25:Atom 26:Atom 27:Atom 28:Atom
29:Atom 30:Atom 31:Atom 32:Atom 34:CLASS

L2 STRUCTURE UPLOADED

=> d l2
L2 HAS NO ANSWERS
L2 STR



G1 O,S,SO2,Ak

Structure attributes must be viewed using STN Express query preparation.

=> s sam (l1 or l2)
SAMPLE SEARCH INITIATED 09:57:14 FILE 'REGISTRY'
SAMPLE SCREEN SEARCH COMPLETED - 33 TO ITERATE

100.0% PROCESSED 33 ITERATIONS
SEARCH TIME: 00.00.01

1 ANSWERS

FULL FILE PROJECTIONS: ONLINE **COMPLETE**
BATCH **COMPLETE**
PROJECTED ITERATIONS: 316 TO 1004
PROJECTED ANSWERS: 1 TO 80

10/633,890 searched 12-3-04

L3 1 SEA SSS SAM (L1 OR L2)

```
=> s full (11 or 12)
FULL SEARCH INITIATED 09:57:22 FILE 'REGISTRY'
FULL SCREEN SEARCH COMPLETED -    784 TO ITERATE
```

100.0% PROCESSED 784 ITERATIONS 23 ANSWERS
SEARCH TIME: 00.00.01

L4 23 SEA SSS FUL (L1 OR L2)

FILE 'CAPLUS' ENTERED AT 09:57:49 ON 03 DEC 2004
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FILE COVERS 1907 - 3 Dec 2004 VOL 141 ISS 23
FILE LAST UPDATED: 1 Dec 2004 (20041201/ED)

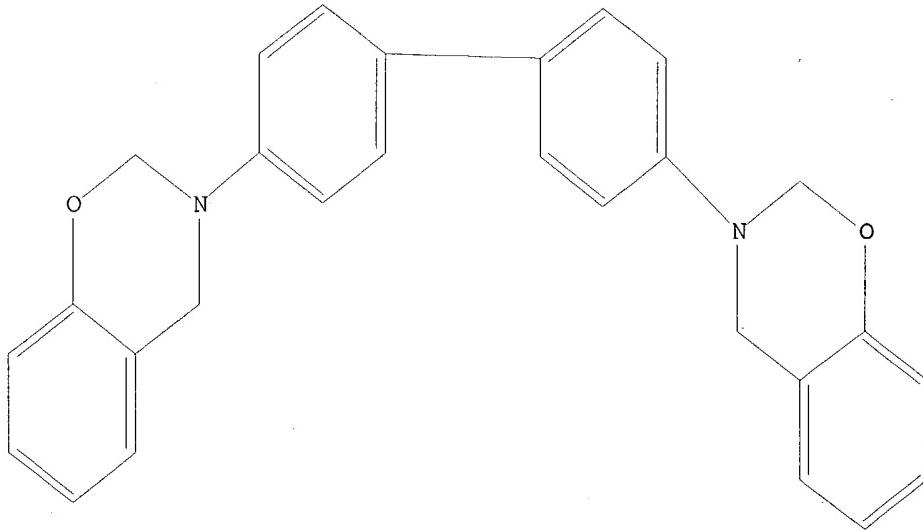
This file contains CAS Registry Numbers for easy and accurate substance identification.

```
=> s 14
L5          15 L4

=> d l1 abs ibib hitstr 1
L1 HAS NO ANSWERS
'ABS IBIB HITSTR ' IS NOT A VALID STRUCTURE FORMAT KEYWORD
Structure Formats
SIA ----- Structure Image, Attributes, and map table if it contains
        data. (Default)
SIM ----- Structure IMage.
SAT ----- Structure ATtributes and map table if it contains data.
SCT ----- Structure Connection Table and map table if it contains
        data.
SDA ----- All Structure DAta (image, attributes, connection table and
        map table if it contains data).
NOS ----- NO Structure data.
ENTER STRUCTURE FORMAT (SIM), NOS:
ENTER STRUCTURE FORMAT (SIM), NOS:d 15 abs ibib histstr 1
'D L5 ABS IBIB HISTSTR 1' IS NOT A VALID STRUCTURE FORMAT KEYWORD
Structure Formats
SIA ----- Structure Image, Attributes, and map table if it contains
        data. (Default)
SIM ----- Structure IMage.
```

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SAT ----- Structure ATtributes and map table if it contains data.
SCT ----- Structure Connection Table and map table if it contains data.
SDA ----- All Structure DATA (image, attributes, connection table and map table if it contains data).
NOS ----- NO Structure data.
ENTER STRUCTURE FORMAT (SIM), NOS:1
'1' IS NOT A VALID STRUCTURE FORMAT KEYWORD
Structure Formats
SIA ----- Structure Image, Attributes, and map table if it contains data. (Default)
SIM ----- Structure IMage.
SAT ----- Structure ATtributes and map table if it contains data.
SCT ----- Structure Connection Table and map table if it contains data.
SDA ----- All Structure DATA (image, attributes, connection table and map table if it contains data).
NOS ----- NO Structure data.
ENTER STRUCTURE FORMAT (SIM), NOS:sia
'SIA' IS NOT A VALID STRUCTURE FORMAT KEYWORD
Structure Formats
SIA ----- Structure Image, Attributes, and map table if it contains data. (Default)
SIM ----- Structure IMage.
SAT ----- Structure ATtributes and map table if it contains data.
SCT ----- Structure Connection Table and map table if it contains data.
SDA ----- All Structure DATA (image, attributes, connection table and map table if it contains data).
NOS ----- NO Structure data.
ENTER STRUCTURE FORMAT (SIM), NOS:sim
L1 STR



Structure attributes must be viewed using STN Express query preparation.

=> d 15 abs ibib histstr 1
'HISTSTR' IS NOT A VALID FORMAT FOR FILE 'CAPLUS'

The following are valid formats:

10/633,890 searched 12-3-04

ABS ----- GI and AB
ALL ----- BIB, AB, IND, RE
APPS ----- AI, PRAI
BIB ----- AN, plus Bibliographic Data and PI table (default)
CAN ----- List of CA abstract numbers without answer numbers
CBIB ----- AN, plus Compressed Bibliographic Data
DALL ----- ALL, delimited (end of each field identified)
DMAX ----- MAX, delimited for post-processing
FAM ----- AN, PI and PRAI in table, plus Patent Family data
FBIB ----- AN, BIB, plus Patent FAM
IND ----- Indexing data
IPC ----- International Patent Classifications
MAX ----- ALL, plus Patent FAM, RE
PATS ----- PI, SO
SAM ----- CC, SX, TI, ST, IT
SCAN ----- CC, SX, TI, ST, IT (random display, no answer numbers;
SCAN must be entered on the same line as the DISPLAY,
e.g., D SCAN or DISPLAY SCAN)
STD ----- BIB, IPC, and NCL

IABS ----- ABS, indented with text labels
IALL ----- ALL, indented with text labels
IBIB ----- BIB, indented with text labels
IMAX ----- MAX, indented with text labels
ISTD ----- STD, indented with text labels

OBIB ----- AN, plus Bibliographic Data (original)
OIBIB ----- OBIB, indented with text labels

SBIB ----- BIB, no citations
SIBIB ----- IBIB, no citations

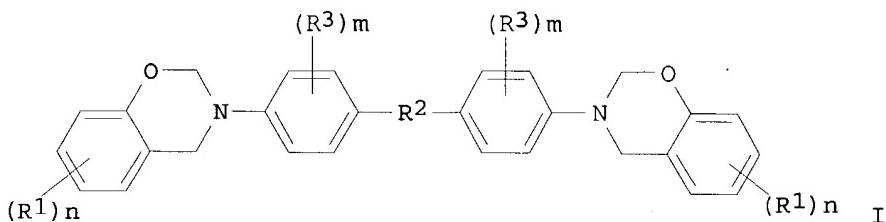
HIT ----- Fields containing hit terms
HITIND ----- IC, ICA, ICI, NCL, CC and index field (ST and IT)
containing hit terms
HITRN ----- HIT RN and its text modification
HITSTR ----- HIT RN, its text modification, its CA index name, and
its structure diagram
HITSEQ ----- HIT RN, its text modification, its CA index name, its
structure diagram, plus NTE and SEQ fields
FHITSTR ----- First HIT RN, its text modification, its CA index name, and
its structure diagram
FHITSEQ ----- First HIT RN, its text modification, its CA index name, its
structure diagram, plus NTE and SEQ fields
KWIC ----- Hit term plus 20 words on either side
OCC ----- Number of occurrence of hit term and field in which it occurs

To display a particular field or fields, enter the display field codes. For a list of the display field codes, enter HELP DFIELDS at an arrow prompt (=>). Examples of formats include: TI; TI,AU; BIB,ST; TI,IND; TI,SO. You may specify the format fields in any order and the information will be displayed in the same order as the format specification.

All of the formats (except for SAM, SCAN, HIT, HITIND, HITRN, HITSTR, FHITSTR, HITSEQ, FHITSEQ, KWIC, and OCC) may be used with DISPLAY ACC to view a specified Accession Number.

ENTER DISPLAY FORMAT (BIB):abs ibib hitstr

L5 ANSWER 1 OF 15 CAPLUS COPYRIGHT 2004 ACS on STN
GI



AB Disclosed are benzoxazine compds. I (R1 = alkyl, alkenyl, alkoxy, OH, halo, or amino; R2 = single bond, alkylene, O, S, or SO2; R3 = H or C1-6 alkyl; m = 0-4; n = 1-4) and a method for preparing the same. These compds. are prepared by the reaction of a phenolic compound, an aromatic diamine compound,

and HCHO or paraformaldehyde. I are useful for crosslinking epoxy resins to give products with low water absorption.

ACCESSION NUMBER: 2004:293427 CAPLUS

DOCUMENT NUMBER: 140:304721

TITLE: Benzoxazine derivatives and method of preparing the same

INVENTOR(S): Hwang, Kuen-yuan; Tu, An-pang; Liao, Shyh Haw

PATENT ASSIGNEE(S): Taiwan

SOURCE: U.S. Pat. Appl. Publ., 15 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---------------|------|----------|-----------------|----------|
| US 2004068084 | A1 | 20040408 | US 2003-630195 | 20030729 |
| JP 2004123703 | A2 | 20040422 | JP 2003-169185 | 20030613 |
| JP 2004123742 | A2 | 20040422 | JP 2003-337382 | 20030929 |

PRIORITY APPLN. INFO.: TW 2002-91122816 A 20021003

OTHER SOURCE(S): MARPAT 140:304721

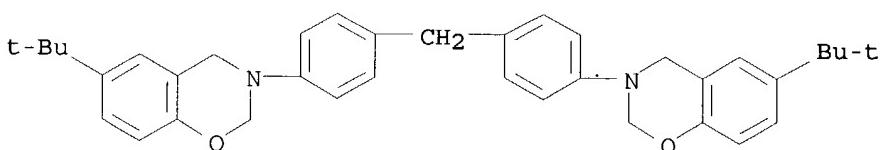
IT 676547-37-8P, PF 3900M60

RL: IMF (Industrial manufacture); MOA (Modifier or additive use); PREP (Preparation); USES (Uses)

(PF 3900M60; benzoxazine derivs. from formaldehyde, bisaniline derivs., substituted phenols for crosslinking agents for epoxy resins providing products with low water absorption)

RN 676547-37-8 CAPLUS

CN 2H-1,3-Benzoxazine, 3,3'-(methylenedi-4,1-phenylene)bis[6-(1,1-dimethylethyl)-3,4-dihydro- (9CI) (CA INDEX NAME)



IT 677006-41-6P 677006-42-7P

RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(benzoxazine derivs. from formaldehyde, bisaniline derivs., substituted phenols for crosslinking agents for epoxy resins providing products

10/633,890 searched 12-3-04

with low water absorption)

RN 677006-41-6 CAPLUS

CN 2H-1,3-Benzoxazine, 3,3'-(methylenedi-4,1-phenylene)bis[6-(1,1-dimethylethyl)-3,4-dihydro-, polymer with BEB 580A75 and TNE 190A70 (9CI) (CA INDEX NAME)

CM 1

CRN 677005-87-7

CMF Unspecified

CCI PMS, MAN

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CM 2

CRN 677005-85-5

CMF Unspecified

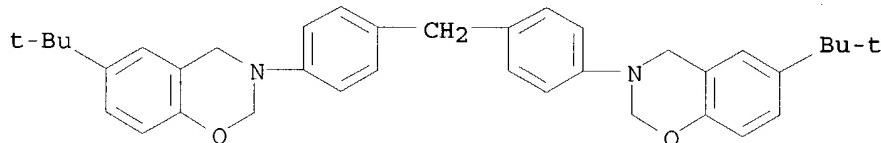
CCI PMS, MAN

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CM 3

CRN 676547-37-8

CMF C37 H42 N2 O2



RN 677006-42-7 CAPLUS

CN 2H-1,3-Benzoxazine, 3,3'-(methylenedi-4,1-phenylene)bis[6-(1,1-dimethylethyl)-3,4-dihydro-, polymer with 2,2'-[{(1-methylethylidene)bis[(2,6-dibromo-4,1-phenylene)oxymethylene]}bis[oxirane] and TNE 190A70 (9CI) (CA INDEX NAME)

CM 1

CRN 677005-87-7

CMF Unspecified

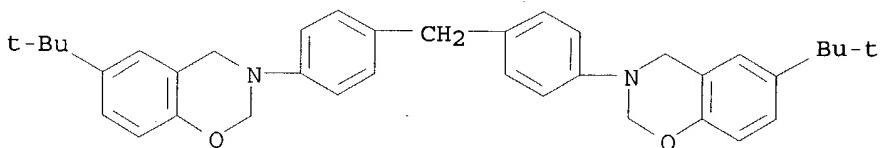
CCI PMS, MAN

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CM 2

CRN 676547-37-8

CMF C37 H42 N2 O2

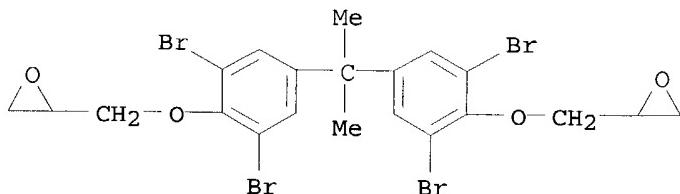


10/633,890 searched 12-3-04

CM 3

CRN 3072-84-2

CMF C21 H20 Br4 O4



IT 677006-43-8P 677006-44-9P

RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(control crosslinked material; benzoxazine derivs. from formaldehyde, bisaniline derivs., substituted phenols for crosslinking agents for epoxy resins providing products with low water absorption)

RN 677006-43-8 CAPLUS

CN 2H-1,3-Benzoxazine, 3,3'-(methylenedi-4,1-phenylene)bis[3,4-dihydro-, polymer with BEB 580A75 and TNE 190A70 (9CI) (CA INDEX NAME)

CM 1

CRN 677005-87-7

CMF Unspecified

CCI PMS, MAN

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CM 2

CRN 677005-85-5

CMF Unspecified

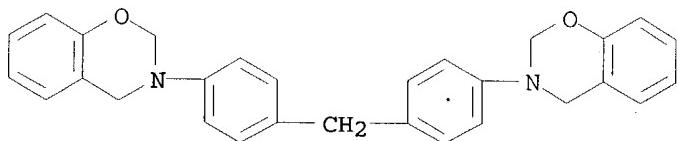
CCI PMS, MAN

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CM 3

CRN 127959-98-2

CMF C29 H26 N2 O2



RN 677006-44-9 CAPLUS

CN 2H-1,3-Benzoxazine, 3,3'-(methylenedi-4,1-phenylene)bis[3,4-dihydro-, polymer with 2,2'-(1-methylallylidene)bis[(2,6-dibromo-4,1-phenylene)oxymethylene]]bis[oxirane] and TNE 190A70 (9CI) (CA INDEX NAME)

CM 1

CRN 677005-87-7

CMF Unspecified

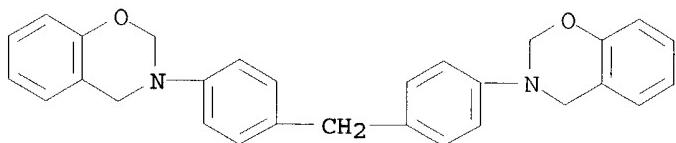
10/633,890 searched 12-3-04

CCI PMS, MAN

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

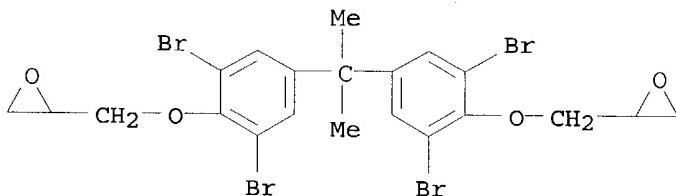
CM 2

CRN 127959-98-2
CMF C29 H26 N2 O2



CM 3

CRN 3072-84-2
CMF C21 H20 Br4 O4

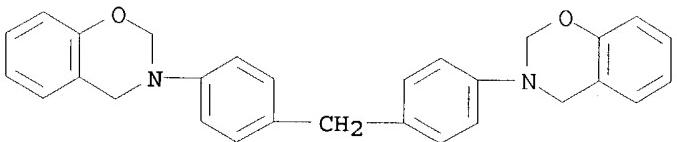


IT 127959-98-2P

RL: IMF (Industrial manufacture); MOA (Modifier or additive use); PREP (Preparation); USES (Uses)
(control crosslinker; benzoxazine derivs. from formaldehyde, bisaniline derivs., substituted phenols for crosslinking agents for epoxy resins providing products with low water absorption)

RN 127959-98-2 CAPLUS

CN 2H-1,3-Benzoxazine, 3,3'-(methylenedi-4,1-phenylene)bis[3,4-dihydro- (9CI)
(CA INDEX NAME)



=> d 15 abs ibib hitstr 2

L5 ANSWER 2 OF 15 CAPLUS COPYRIGHT 2004 ACS on STN

AB The benzoxazine-based thermosetting resins showed high heat resistance and glass transition temperature and small volumetric shrinkage. Various bi-functional benzoxazines are prepared from corresponding bis-phenols for studies of their exothermic hardening behavior, thermal decomposition and thermomech. properties after curing at 200°C. Benzoxazines with electron-withdrawing spacer exhibit exothermic hardening at lower temperature from the results of DSC anal. Thermal decomposition of any cured benzoxazines

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commence in the vicinity of 300°C, despite their different structures in spacers. The alkyl substituent spacer-excluded benzoxazines showed ≥50% of residual weight at 700°C. Results of dynamic mech. anal. on benzoxazines demonstrated that the spacers affect their high modulus and glass transition temps.

ACCESSION NUMBER: 2003:969643 CAPLUS
DOCUMENT NUMBER: 141:174779
TITLE: Hardening temperature and heat-resistance properties of benzoxazine resin
AUTHOR(S): Furukawa, Nobuyuki; Wada, Yukihiro; Yuasa, Masatoshi; Yokoyama, Naoki; Takeichi, Tsutomu
CORPORATE SOURCE: R & D Laboratories, Nippon Steel Chemical Co., Ltd., Kitakyushu, 804-8503, Japan
SOURCE: Nippon Setchaku Gakkaishi (2003), 39(11), 416-422
PUBLISHER: Nippon Setchaku Gakkai
DOCUMENT TYPE: Journal
LANGUAGE: Japanese

IT 127959-99-3P

RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(curing temperature, heat-resistance, and mech. strength of various spacer-containing benzoxazine resins)

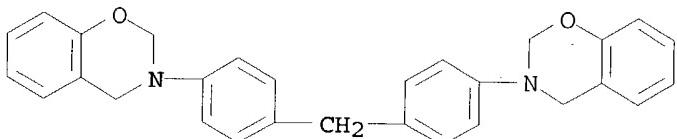
RN 127959-99-3 CAPLUS

CN 2H-1,3-Benzoxazine, 3,3'-(methylenedi-4,1-phenylene)bis[3,4-dihydro-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 127959-98-2

CMF C29 H26 N2 O2

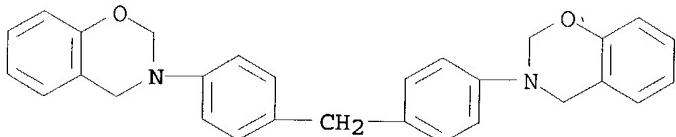


IT 127959-98-2P

RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(curing temperature, heat-resistance, and mech. strength of various spacer-containing benzoxazine resins)

RN 127959-98-2 CAPLUS

CN 2H-1,3-Benzoxazine, 3,3'-(methylenedi-4,1-phenylene)bis[3,4-dihydro- (9CI) (CA INDEX NAME)



=> d 15 abs ibib hitstr 3

L5 ANSWER 3 OF 15 CAPLUS COPYRIGHT 2004 ACS on STN

AB Curable compns. comprise a benzoxazine compound or resin in combination with

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at least one addnl. curable compound or resin. Optionally, the composition will

further comprise a curing agent and/or a filler. These compns. have utility as adhesives, coatings and encapsulants, especially for use within the semiconductor fabrication industry, with particular utility as die attach adhesives, films, and underfill materials, such as no-flow underfills, capillary flow underfills, wafer level underfills, and as lead free solders.

ACCESSION NUMBER: 2003:696945 CAPLUS
DOCUMENT NUMBER: 139:231401
TITLE: Curable compositions containing benzoxazines, their manuf and uses
INVENTOR(S): Musa, Osama M.
PATENT ASSIGNEE(S): National Starch and Chemical Investment Holding Corporation, USA
SOURCE: PCT Int. Appl., 45 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|------|----------|-----------------|------------|
| WO 2003072638 | A1 | 20030904 | WO 2003-US859 | 20030110 |
| W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZM, ZW | | | | |
| RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR | | | | |
| US 6620905 | B1 | 20030916 | US 2002-80738 | 20020223 |
| EP 1476493 | A1 | 20041117 | EP 2003-702069 | 20030110 |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK | | | | |
| PRIORITY APPLN. INFO.: | | | US 2002-80738 | A 20020223 |
| | | | WO 2003-US859 | W 20030110 |

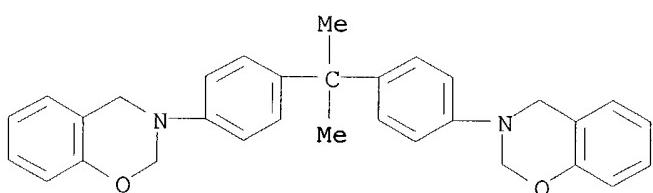
IT 591766-90-4 591766-91-5

RL: RCT (Reactant); RACT (Reactant or reagent)
(curable compds.; manufacture of curable compns. containing benzoxazines useful

for adhesives used in semiconductor devices)

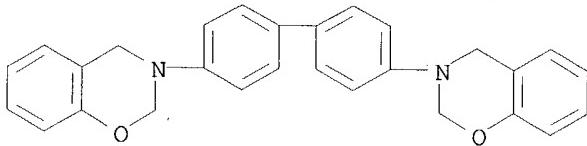
RN 591766-90-4 CAPLUS

CN 2H-1,3-Benzoxazine, 3,3'-(1-methylethylidene)di-4,1-phenylene]bis[3,4-dihydro- (9CI) (CA INDEX NAME)



RN 591766-91-5 CAPLUS

CN 2H-1,3-Benzoxazine, 3,3'-(1,1'-biphenyl)-4,4'-diylbis[3,4-dihydro- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

=> d 15 abs ibib hitstr 4

L5 ANSWER 4 OF 15 CAPLUS COPYRIGHT 2004 ACS on STN

AB A method for synthesis of 3,4-dihydro-3-pentafluorophenyl-2H-1,3-benzoxazine in a high yield derived from pentafluoroaniline is described. This fluorinated benzoxazine monomer has been developed as a potential precursor for a polybenzoxazine in electronic applications as well as others taking advantage of the low dielec. constant, low flammability, low refractive index, low coefficient of friction, and high glass transition temperature

of fluorinated compds. The traditional benzoxazine synthesis conditions are inappropriate for the synthesis of fluorinated benzoxazines when the fluorination is on the primary amine component. The pH value of the reaction medium is the controlling factor in the yield of the compound from weak amines. A strongly acidic condition is necessary for the synthesis of similar compds. from other very weak amines having a pKa lower than 3. A dramatic increase in the yield of benzoxazine ring has been observed when benzoxazines with very weak amines are synthesized in an acidic medium. The effects of solvent and pKa of phenol are also discussed. The synthesized compds. have been characterized by 1H NMR, FTIR, GPC and HPLC.

ACCESSION NUMBER: 2002:316212 CAPLUS

DOCUMENT NUMBER: 137:79264

TITLE: High yield synthesis of fluorinated benzoxazine monomers and their molecular characterization

AUTHOR(S): Liu, Jingping; Ishida, Hatsuo

CORPORATE SOURCE: Department of Macromolecular Science and Engineering, Case Western Reserve University, Cleveland, OH, 44106-7202, USA

SOURCE: Polymers & Polymer Composites (2002), 10(3), 191-203

PUBLISHER: CODEN: PPOCEC; ISSN: 0967-3911

DOCUMENT TYPE: Rapra Technology Ltd.

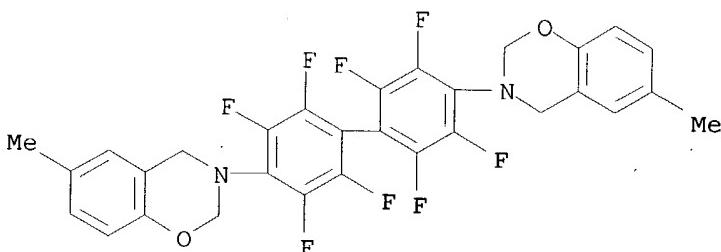
LANGUAGE: English

IT 440354-85-8P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation) (monomer; synthesis and mol. characterization of fluorinated benzoxazine monomers from pentafluoroaniline)

RN 440354-85-8 CAPLUS

CN 2H-1,3-Benzoxazine, 3,3'-(2,2',3,3',5,5',6,6'-octafluoro[1,1'-biphenyl]-4,4'-diyl)bis[3,4-dihydro-6-methyl- (9CI) (CA INDEX NAME)

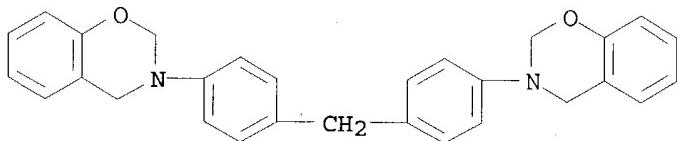


REFERENCE COUNT: 26 THERE ARE 26 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

=> d 15 abs ibib hitstr 5

L5 ANSWER 5 OF 15 CAPLUS COPYRIGHT 2004 ACS on STN
 AB Applications of benzoxazines as ablative resins were studied in this paper. Char yields of four kinds of cured benzoxazine precursors were measured by TGA and the data showed that the char yields of multi-benzoxazine PBOZ precursors and di-benzoxazine MDABOZ, DRBOZ precursors were higher than 60%, but that of mono-benzoxazine SRBOZ precursors was relatively low. By introducing MDABOZ, DRBOZ and APPFBOZ precursors into SRBOZ resin system, resultant char yield was remarkably raised over 60%, and viscosity of the resin systems was still low. Small generator ablation tests indicated that cured PBOZ precursors exhibited good ablation-resistance and cured SRBOZ resin system modified by di-benzoxazine MDABOZ precursors, with low viscosity, was upgraded substantially in its ablation-resistance.

ACCESSION NUMBER: 2002:252636 CAPLUS
 DOCUMENT NUMBER: 137:170195
 TITLE: Primary investigation on ablative properties of benzoxazine resins
 AUTHOR(S): Ji, Fenglong; Gu, Yi; Xie, Meili; Luo, Yongkang; Yu, Chunan; Cai, Jianqiang
 CORPORATE SOURCE: College of Polymer Science and Engineering, Natl. Key Lab. for Polymer Engineering, Sichuan University, Chengdu, 610065, Peop. Rep. China
 SOURCE: Yuhang Cailiao Gongyi (2002), 32(1), 25-29
 CODEN: YCGOFH; ISSN: 1007-2330
 PUBLISHER: Yuhang Cailiao Gongyi Bianjibu
 DOCUMENT TYPE: Journal
 LANGUAGE: Chinese
 IT 127959-98-2D, polymers
 RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PROC (Process); USES (Uses)
 (primary investigation on ablative properties of benzoxazine resins)
 RN 127959-98-2 CAPLUS
 CN 2H-1,3-Benzoxazine, 3,3'-(methylenedi-4,1-phenylene)bis[3,4-dihydro- (9CI)
 (CA INDEX NAME)



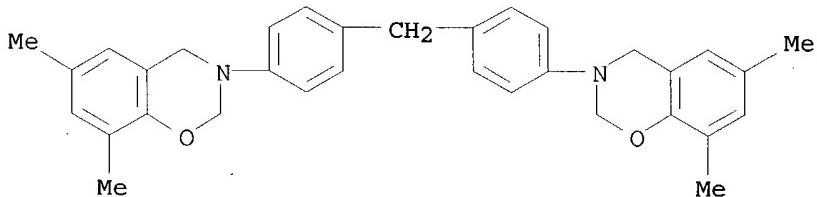
=> d 15 abs ibib hitstr 6

L5 ANSWER 6 OF 15 CAPLUS COPYRIGHT 2004 ACS on STN
 AB The reaction pathways on the curing reaction of 3-aryl substituted benzoxazine was investigated from the model reaction of 3,4-dihydro-6,8-dimethyl-3-phenyl-2H-1,3-benzoxazine (1) with 2,4-xylenol (2). The reaction was carried out at 140°C for 5 h. N,N-Bis(2-hydroxy-3,5-dimethylbenzyl)phenylamine (3) and N-(2-hydroxy-3,5-dimethylbenzyl)phenylamine (4) were isolated as main products at an early stage. The reaction of 3 by the thermal treatment was studied by 1H-NMR spectroscopy. This result indicates that compound 3

10/633,890 searched 12-3-04

produces several inter- and intramol. rearrangement products. Based on these data, some possible reaction pathways were proposed. In the presence of p-toluenesulfonic acid monohydrate, 3,3'-(4,4'-methylenediphenyl)bis(3,4-dihydro-6,8-dimethyl-2H-1,3-benzoxazine) (9) was isolated as one of the intermediates.

ACCESSION NUMBER: 2000:290250 CAPLUS
DOCUMENT NUMBER: 133:44296
TITLE: The curing reaction of 3-aryl substituted benzoxazine
AUTHOR(S): Hayakawa, Teruaki; Osanai, Yoshinori; Niizeki,
Kouichi; Haba, Osamu; Ueda, Mitsuru
CORPORATE SOURCE: Division of Human Sensing and Functional Sensor
Engineering, Graduate School of Engineering, Yamagata
University, Yamagata, 992-8510, Japan
SOURCE: High Performance Polymers (2000), 12(1), 237-246
CODEN: HPPOEX; ISSN: 0954-0083
PUBLISHER: Institute of Physics Publishing
DOCUMENT TYPE: Journal
LANGUAGE: English
IT 275818-34-3P
RL: SPN (Synthetic preparation); PREP (Preparation)
(intermediate; curing reaction of 3-aryl substituted benzoxazine as
model compds. for phenolic resins)
RN 275818-34-3 CAPLUS
CN 2H-1,3-Benzoxazine, 3,3'-(methylene-4,1-phenylene)bis[3,4-dihydro-6,8-dimethyl- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

=> d 15 abs ibib hitstr 7

L5 ANSWER 7 OF 15 CAPLUS COPYRIGHT 2004 ACS on STN
AB Adhesives for the title films contain thermosetting oxazine polymers having ≥ 1 1-oxa-3-azatetralin group in the mol., alone or in combination with a curable epoxy resin. Thus, a 0.035-mm Cu foil was attached to 0.02-mm Kapton film by means of a 67:33 N,N-methylenediphenylenebis(benzoxazine)-3,4-epoxycyclohexylmethyl 3,4-epoxycyclohexanecarboxylate composition and pressed 1 h at 200°. The tear strength was 3.8 N/mm.
ACCESSION NUMBER: 1992:107765 CAPLUS
DOCUMENT NUMBER: 116:107765
TITLE: Gluing of polyimide films and circuit boards therefore
INVENTOR(S): Schreiber, Herbert; Saur, Wolfgang
PATENT ASSIGNEE(S): Gurit-Essex A.-G., Switz.
SOURCE: Ger., 6 pp.
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

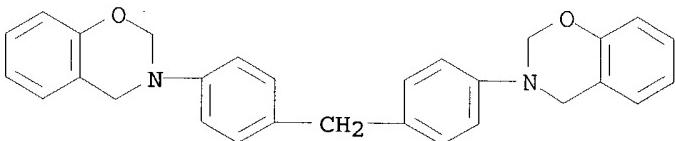
PATENT NO.

KIND DATE

APPLICATION NO.

DATE

| | | | | |
|--|--------|----------|-----------------|----------|
| DE 4016548 | C1 | 19910912 | DE 1990-4016548 | 19900523 |
| EP 458740 | A1 | 19911127 | EP 1991-810320 | 19910426 |
| R: AT, BE, CH, DE, ES, FR, GB, IT, LI, NL, SE | | | | |
| CA 2042153 | AA | 19911124 | CA 1991-2042153 | 19910509 |
| ZA 9103626 | A | 19920226 | ZA 1991-3626 | 19910514 |
| JP 04227936 | A2 | 19920818 | JP 1991-114852 | 19910520 |
| US 5176780 | A | 19930105 | US 1991-703194 | 19910520 |
| AU 9177265 | A1 | 19920102 | AU 1991-77265 | 19910523 |
| PRIORITY APPLN. INFO.: | | | DE 1990-4016548 | 19900523 |
| IT 127959-98-2 | | | | |
| RL: USES (Uses) | | | | |
| (adhesive compns. containing, for polyimide films and metal foils, in circuit board manufacture) | | | | |
| RN 127959-98-2 | CAPLUS | | | |
| CN 2H-1,3-Benzoxazine, 3,3'-(methylenedi-4,1-phenylene)bis[3,4-dihydro- | (9CI) | | | |
| (CA INDEX NAME) | | | | |



=> d 15 abs ibib hitstr 8

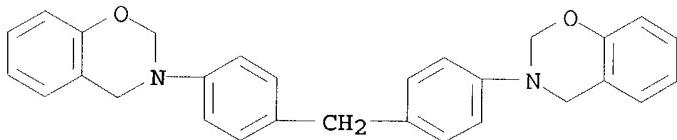
L5 ANSWER 8 OF 15 CAPLUS COPYRIGHT 2004 ACS on STN
 AB The title resins are prepared from ≥70% 1-oxa-3-azatetralins and ≤30% halogenated epoxy resins. Thus, a composition of 3,3'-(methylenedi-p-phenylene)bis(1-oxa-3-azatetralin) 90, brominated epoxy resin 10, and glass fibers 9 parts gave moldings with UL-94 flammability rating V-0 (1st and 2nd burning time 4.0 and 48 s, resp.); vs. complete burning without the epoxy resin.
 ACCESSION NUMBER: 1991:681359 CAPLUS
 DOCUMENT NUMBER: 115:281359
 TITLE: Flame- and/or heat-resistant thermosetting resin preparation
 INVENTOR(S): Schreiber, Herbert; Burkart, Guenter; Knaus, Bruno
 PATENT ASSIGNEE(S): Gurit-Essex A.-G., Switz.
 SOURCE: Ger., 11 pp.
 CODEN: GWXXAW
 DOCUMENT TYPE: Patent
 LANGUAGE: German
 FAMILY ACC. NUM. COUNT: 2
 PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|------|----------|-----------------|----------|
| DE 4016296 | C1 | 19910905 | DE 1990-4016296 | 19900521 |
| EP 458739 | A2 | 19911127 | EP 1991-810319 | 19910426 |
| EP 458739 | A3 | 19930901 | | |
| R: AT, BE, CH, DE, ES, FR, GB, IT, LI, NL, SE | | | | |
| ZA 9103434 | A | 19920226 | ZA 1991-3434 | 19910507 |
| CA 2042840 | AA | 19911122 | CA 1991-2042840 | 19910517 |
| CA 2042840 | C | 19961126 | | |
| JP 04227922 | A2 | 19920818 | JP 1991-114850 | 19910520 |
| JP 3203385 | B2 | 20010827 | | |
| AU 9177213 | A1 | 19911121 | AU 1991-77213 | 19910521 |
| AU 636226 | B2 | 19930422 | | |

10/633,890 searched 12-3-04

US 5443911 A 19950822 US 1993-150975 19931112
PRIORITY APPLN. INFO.: DE 1990-4016296 A 19900521
US 1991-703193 B2 19910520

IT 127959-98-2
RL: USES (Uses)
(in fire- and heat-resistant halogenated epoxy resin moldings)
RN 127959-98-2 CAPLUS
CN 2H-1,3-Benzoxazine, 3,3'-(methylene-di-4,1-phenylene)bis[3,4-dihydro- (9CI)
(CA INDEX NAME)



=> d 15 abs ibib hitstr 9

L5 ANSWER 9 OF 15 CAPLUS COPYRIGHT 2004 ACS on STN
AB The title resins contain thermosetting compds. containing 1-oxa-3-azatetralin groups and immiscible fireproofing agents. Curing a mixture of 3,3'-(Methylenedi-p-phenylene)bis(3,4-dihydro-1,3-benzoxazine) 30, Al(OH)3 10, and glass fabric (110 g/m²) 10 parts at 200° gave a 0.9-mm plate with UL-94 flammability rating V-1.
ACCESSION NUMBER: 1990:441934 CAPLUS
DOCUMENT NUMBER: 113:41934
TITLE: Fire- and heat-resistant plastics and their preparation
INVENTOR(S): Schreiber, Herbert; Saur, Wolfgang
PATENT ASSIGNEE(S): Gurit-Essex A.-G., Switz.
SOURCE: Eur. Pat. Appl., 10 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|------|----------|-----------------|------------|
| EP 356379 | A1 | 19900228 | EP 1989-810514 | 19890706 |
| EP 356379 | B1 | 19960320 | | |
| R: AT, BE, CH, DE, ES, FR, GB, GR, IT, LI, LU, NL, SE | | | | |
| CH 675248 | A | 19900914 | CH 1988-2733 | 19880718 |
| CH 678531 | A | 19910930 | CH 1989-2383 | 19890627 |
| AT 135724 | E | 19960415 | AT 1989-810514 | 19890706 |
| ES 2088905 | T3 | 19961001 | ES 1989-810514 | 19890706 |
| US 5021484 | A | 19910604 | US 1989-376875 | 19890707 |
| CA 1338298 | A1 | 19960430 | CA 1989-605649 | 19890711 |
| AU 8938067 | A1 | 19900118 | AU 1989-38067 | 19890713 |
| AU 615557 | B2 | 19911003 | | |
| CN 1039602 | A | 19900214 | CN 1989-106065 | 19890718 |
| CN 1019810 | B | 19921230 | | |
| JP 02069567 | A2 | 19900308 | JP 1989-183852 | 19890718 |
| JP 2952419 | B2 | 19990927 | | |
| DD 284036 | A5 | 19901031 | DD 1989-330942 | 19890718 |
| KR 130970 | B1 | 19980413 | KR 1989-10212 | 19890718 |
| ZA 8905222 | A | 19900425 | ZA 1989-5222 | 19890719 |
| PRIORITY APPLN. INFO.: | | | CH 1988-2733 | A 19880718 |
| | | | CH 1989-2383 | A 19890627 |

10/633,890 searched 12-3-04

IT 127959-99-3

RL: USES (Uses)

(fire- and heat-resistant, compns. of)

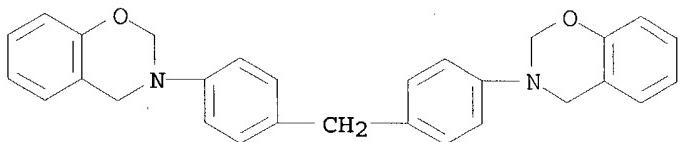
RN 127959-99-3 CAPLUS

CN 2H-1,3-Benzoxazine, 3,3'-(methylenedi-4,1-phenylene)bis[3,4-dihydro-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 127959-98-2

CMF C29 H26 N2 O2



IT 127960-00-3 127960-04-7 127960-05-8

RL: USES (Uses)

(fire- and heat-resistant, formulation of)

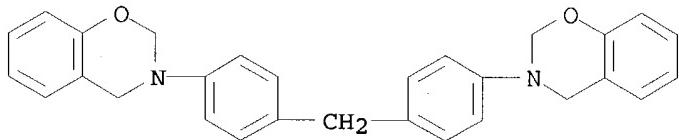
RN 127960-00-3 CAPLUS

CN 2H-1,3-Benzoxazine, 3,3'-(methylenedi-4,1-phenylene)bis[3,4-dihydro-, polymer with 2,2'-(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bis[oxirane] (9CI) (CA INDEX NAME)

CM 1

CRN 127959-98-2

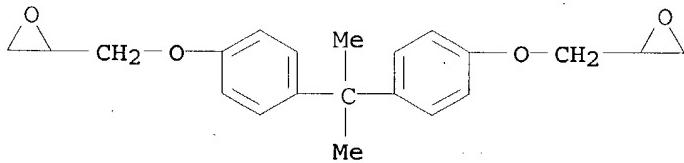
CMF C29 H26 N2 O2



CM 2

CRN 1675-54-3

CMF C21 H24 O4



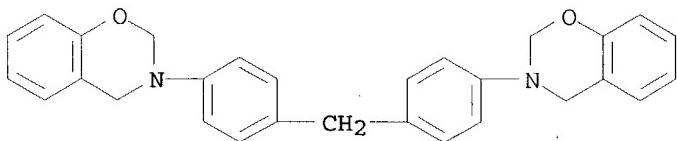
RN 127960-04-7 CAPLUS

CN 7-Oxabicyclo[4.1.0]heptane-3-carboxylic acid, 7-oxabicyclo[4.1.0]hept-3-ylmethyl ester, polymer with 3,3'-(methylenedi-4,1-phenylene)bis[3,4-dihydro-2H-1,3-benzoxazine] (9CI) (CA INDEX NAME)

CM 1

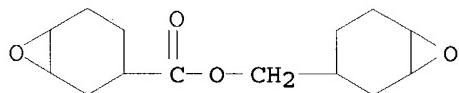
10/633,890 searched 12-3-04

CRN 127959-98-2
CMF C29 H26 N2 O2



CM 2

CRN 2386-87-0
CMF C14 H20 O4

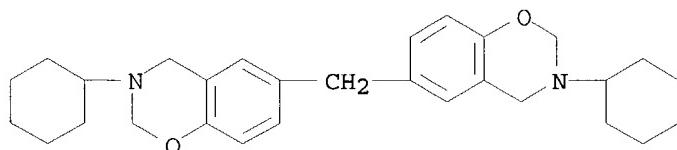


RN 127960-05-8 CAPLUS

CN 2H-1,3-Benzoxazine, 6,6'-methylenebis[3-cyclohexyl-3,4-dihydro-, polymer with 3,3'-(methylenedi-4,1-phenylene)bis[3,4-dihydro-2H-1,3-benzoxazine] (9CI) (CA INDEX NAME)

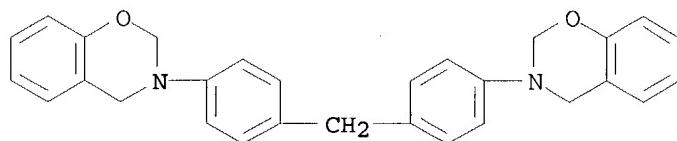
CM 1

CRN 127960-01-4
CMF C29 H38 N2 O2



CM 2

CRN 127959-98-2
CMF C29 H26 N2 O2



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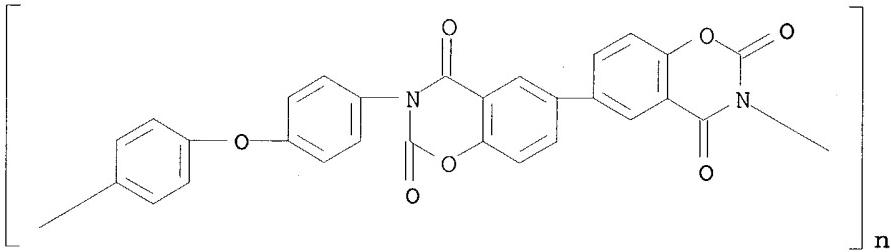
L5 ANSWER 10 OF 15 CAPLUS COPYRIGHT 2004 ACS on STN
AB Molding compns. with good abrasion resistance comprise powdered aromatic

10/633,890 searched 12-3-04

polyimides 35-85, inorg. fibers (diameter 0.1-15 μ) 10-40, and solid lubricants (average diameter 1-30 μ) 5-25%. A mixture of powdered 3,3',4,4'-biphenyltetracarboxylic dianhydride-4,4'-oxydianiline copolymer 75, glass fibers 15, and powdered fluoropolymer (diameter 9 μ , KTL610) parts showed abrasion 0.01 mm/h at abrading rate 128 m/min and 100 kg/cm²-m-min.

ACCESSION NUMBER: 1987:555595 CAPLUS
DOCUMENT NUMBER: 107:155595
TITLE: Polyimide molding compositions
INVENTOR(S): Takabayashi, Seiichiro; Kuramoto, Ken
PATENT ASSIGNEE(S): Ube Industries, Ltd., Japan; NTN-Rulon Industries Co., Ltd.
SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|--------|----------|-----------------|----------|
| JP 62132960 | A2 | 19870616 | JP 1985-274614 | 19851206 |
| PRIORITY APPLN. INFO.: | | | JP 1985-274614 | 19851206 |
| IT 28454-10-6 | | | | |
| RL: PEP (Physical, engineering or chemical process); PROC (Process)
(moldings, containing inorg. fibers and solid lubricants, abrasion
resistant) | | | | |
| RN 28454-10-6 | CAPLUS | | | |
| CN Poly[(2,2',4,4'-tetraoxo[6,6'-bi-2H-1,3-benzoxazine]-3,3' (4H,4'H)-diyl)-1,4-phenyleneoxy-1,4-phenylene] (9CI) (CA INDEX NAME) | | | | |

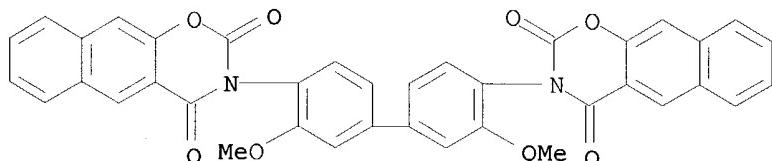


=> d 15 abs ibib hitstr 11

L5 ANSWER 11 OF 15 CAPLUS COPYRIGHT 2004 ACS on STN
GI For diagram(s), see printed CA Issue.
AB Naphthoxazines I, II, and five III (R = substituted phenyl, naphthyl) were prepared by reaction of EtO₂CCl with the hydroxynaphthalenecarboxamides IV-VI, resp. III (R = C₆H₄NO₂-m, C₆H₄Me-o, C₆H₃MeCl-2,4) and II lowered blood pressure in dogs and I had sedative and antiinflammatory activities.
ACCESSION NUMBER: 1976:523834 CAPLUS
DOCUMENT NUMBER: 85:123834
TITLE: Syntheses and biological activity of 1,3-naphthoxazine-2,4-diones
AUTHOR(S): Kekre, J. S.; Sunthankar, S. V.
CORPORATE SOURCE: Dep. Chem. Technol., Univ. Bombay, Bombay, India
SOURCE: Indian Journal of Chemistry, Section B: Organic Chemistry Including Medicinal Chemistry (1976), 14B(3), 212-13
DOCUMENT TYPE: Journal
CODEN: IJSBDB; ISSN: 0376-4699

10/633,890 searched 12-3-04

LANGUAGE: English
IT 60478-09-3P
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(preparation and hypotensive activity of)
RN 60478-09-3 CAPLUS
CN 2H-Naphth[2,3-e]-1,3-oxazine-2,4(3H)-dione, 3,3'-(3,3'-dimethoxy[1,1'-biphenyl]-4,4'-diyl)bis- (9CI) (CA INDEX NAME)



=> d 15 abs ibib hitstr 12

L5 ANSWER 12 OF 15 CAPLUS COPYRIGHT 2004 ACS on STN
GI For diagram(s), see printed CA Issue.
AB Polymer I [57829-65-9] and 10 similar polymers containing 1,3-benzoxazine-2,4-dione structures had good heat resistance, pressure insensitivity, and hydrolysis resistance in acid and alkali and were useful for desalting seawater, brackish water, and wastewater by reverse osmosis. Thus, a mixture of I 15, N-methylpyrrolidone 82, and LiCl 3 g was cast as a 300 μ film, heated 20 min at 70°, and used at a flow rate of 60 l./m²/day to remove 97.5% of the salt from a 3.5% NaCl solution (containing HCl to give pH 1) at 130 atmospheric
ACCESSION NUMBER: 1976:45569 CAPLUS
DOCUMENT NUMBER: 84:45569
TITLE: Asymmetric semipermeable membranes of poly-1,3-benzoxazine-2,4-diones
INVENTOR(S): Knickel, Birger; Binsack, Rudolf; Rudolph, Hans; Rosenkranz, Hans J.; Bottenbruch, Ludwig
PATENT ASSIGNEE(S): Bayer A.-G., Fed. Rep. Ger.
SOURCE: Ger. Offen., 18 pp.
CODEN: GWXXBX
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|-------------|------|----------|-----------------|----------|
| DE 2418996 | A1 | 19751030 | DE 1974-2418996 | 19740419 |
| US 4036748 | A | 19770719 | US 1975-568605 | 19750416 |
| BE 828035 | A1 | 19751017 | BE 1975-155486 | 19750417 |
| SE 7504451 | A | 19751020 | SE 1975-4451 | 19750417 |
| SE 403968 | C | 19790104 | | |
| SE 403968 | B | 19780918 | | |
| FI 7501157 | A | 19751020 | FI 1975-1157 | 19750417 |
| JP 50141587 | A2 | 19751114 | JP 1975-45936 | 19750417 |
| JP 57041965 | B4 | 19820906 | | |
| AT 7502947 | A | 19770915 | AT 1975-2947 | 19750417 |
| GB 1496816 | A | 19780105 | GB 1975-15853 | 19750417 |
| CA 1070065 | A1 | 19800122 | CA 1975-224902 | 19750417 |
| DK 7501678 | A | 19751020 | DK 1975-1678 | 19750418 |
| NL 7504661 | A | 19751021 | NL 1975-4661 | 19750418 |

10/633,890 searched 12-3-04

FR 2268039

CH 610915

A1 19751114

A 19790515

FR 1975-12233

CH 1975-5018

DE 1974-2418996

19750418

19750418

19740419

PRIORITY APPLN. INFO.:

IT 28454-11-7 57829-63-7 57829-64-8

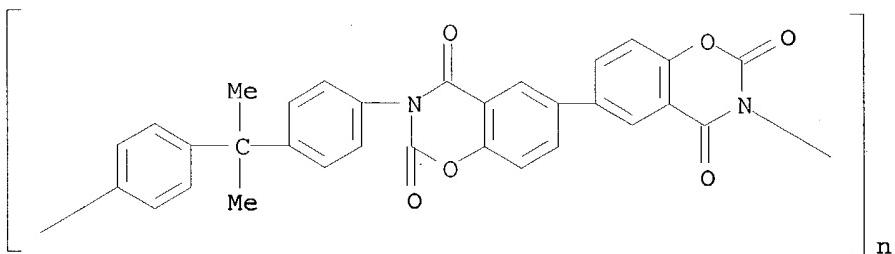
57829-65-9

RL: USES (Uses)

(desalination membranes, heat- and acid-resistant)

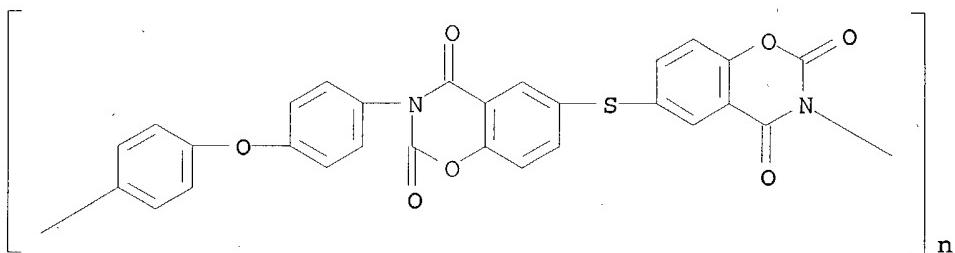
RN 28454-11-7 CAPLUS

CN Poly[(2,2',4,4'-tetraoxo[6,6'-bi-2H-1,3-benzoxazine]-3,3'(4H,4'H)-diyl)-1,4-phenylene(1-methylethylidene)-1,4-phenylene] (9CI) (CA INDEX NAME)



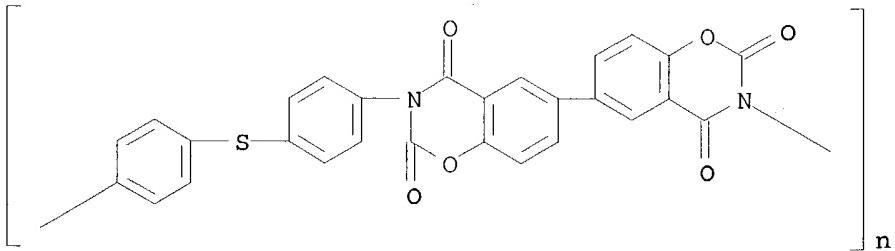
RN 57829-63-7 CAPLUS

CN Poly[(2,4-dioxo-2H-1,3-benzoxazine-3,6,(4H)-diyl)thio(2,4-dioxo-2H-1,3-benzoxazine-6,3,(4H)-diyl)-1,4-phenyleneoxy-1,4-phenylene] (9CI) (CA INDEX NAME)



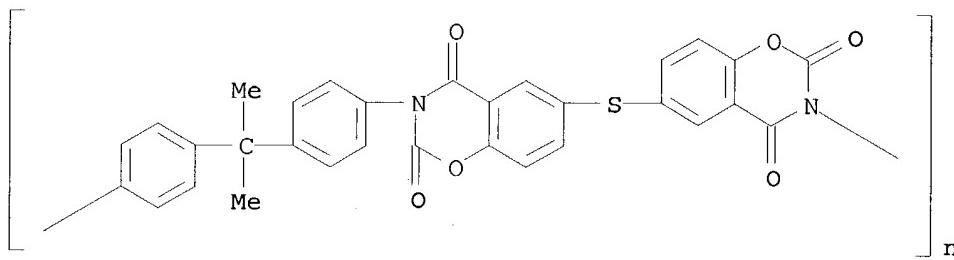
RN 57829-64-8 CAPLUS

CN Poly[(2,2',4,4'-tetraoxo[6,6'-bi-2H-1,3-benzoxazine]-3,3'(4H,4'H)-diyl)-1,4-phenylenethio-1,4-phenylene] (9CI) (CA INDEX NAME)



RN 57829-65-9 CAPLUS

CN Poly[(2,4-dioxo-2H-1,3-benzoxazine-3,6(4H)-diyl)thio(2,4-dioxo-2H-1,3-benzoxazine-6,3(4H)-diyl)-1,4-phenylene(1-methylethylidene)-1,4-phenylene] (9CI) (CA INDEX NAME)



=> d 15 abs ibib hitstr 13

L5 ANSWER 13 OF 15 CAPLUS COPYRIGHT 2004 ACS on STN

AB 1,3-Benzoxazine-2,4-dione group-containing polymers, e.g. 4,4'-bis[(phenoxy carbonyl)amino]diphenyl ether-diphenyl 4,4'-dihydroxybiphenyl-3,3'-dicarboxylate copolymer (I) [51821-77-3], were prepared and used as heat-resistant films. Transparent I films embrittled in the air after 2 months, 4 months, and 2 years at 275, 250, and 235.deg., resp. Thus, 42.64 g di-Ph 4,4'-dihydroxybiphenyl-3,3'-dicarboxylate and 80 mg 1,4-diazabicyclo[2.2.2]octane were added at 80.deg. to 44.04 g (4-PhO₂CNHC₆H₄)₂₀ in 275 ml Me₂SO and the mixture was heated 40 min at 100-4.deg. to give 98% I of relative viscosity 2.80 (1 g in 100 ml H₂SO₄).

ACCESSION NUMBER: 1974:464551 CAPLUS

DOCUMENT NUMBER: 81:64551

TITLE: Heat-resistant poly(1,3-benzoxazine-2,4-diones)

INVENTOR(S): Binsack, Rudolf; Bottenbruch, Ludwig

PATENT ASSIGNEE(S): Bayer A.-G.

SOURCE: Ger. Offen., 16 pp.

CODEN: GWXXBX

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|-------------|------|----------|-----------------|----------|
| DE 2232467 | A1 | 19740110 | DE 1972-2232467 | 19720701 |
| FR 2190872 | A1 | 19740201 | FR 1973-24058 | 19730629 |
| FR 2190872 | B1 | 19790504 | | |
| JP 49052899 | A2 | 19740522 | JP 1973-72999 | 19730629 |
| GB 1408961 | A | 19751008 | GB 1973-31470 | 19730702 |

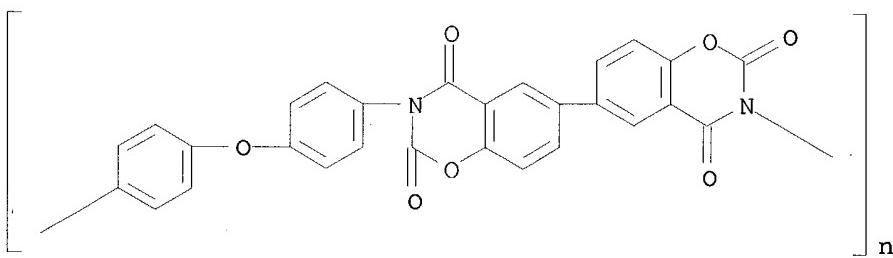
PRIORITY APPLN. INFO.:

IT 28454-10-6

RL: PEP (Physical, engineering or chemical process); PROC (Process)
(heat-resistant)

RN 28454-10-6 CAPLUS

CN Poly[(2,2',4,4'-tetraoxo[6,6'-bi-2H-1,3-benzoxazine]-3,3' (4H,4'H)-diyl)-1,4-phenyleneoxy-1,4-phenylene] (9CI) (CA INDEX NAME)



=> d 15 abs ibib hitstr 14

L5 ANSWER 14 OF 15 CAPLUS COPYRIGHT 2004 ACS on STN

AB High-mol.-weight film-forming polybenzoxazinediones are prepared from di-Ph esters of O,O-dihydroxyaryldicarboxylic acids and diisocyanates, e.g. the di-Ph ester of 4,4'-dihydroxybiphenyldicarboxylic acid and diphenyl ether-4,4'-diisocyanate in Me₂SO solution with tertiary amines as catalyst in an 1-step reaction which comprises the polyaddn. and the polycyclization step. The polymers have good long-term thermal stability at high temps. Their softening range is >390°. They have good mech. and elec. properties over a temperature range of -180 to 300°. Films can be oriented and crystallized by stretching. Because of their solubility in polar solvents, they can be worked up to shaped articles by solution casting. Polybenzoxazinedione films can be used as insulating films for high-temperature uses.

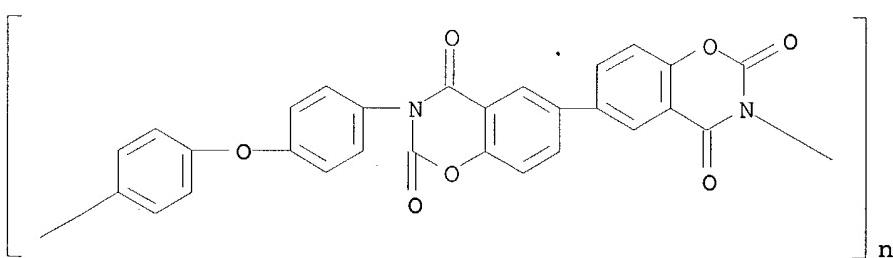
ACCESSION NUMBER: 1970:499270 CAPLUS
 DOCUMENT NUMBER: 73:99270
 TITLE: Poly(benzoxazinediones), a class of high temperature plastics
 AUTHOR(S): Bottenbruch, Ludwig
 CORPORATE SOURCE: Wiss. Hauptlab., Farbenfabriken Bayer A.-G., Uerdingen, Fed. Rep. Ger.
 SOURCE: Angewandte Makromolekulare Chemie (1970), 13, 109-25
 CODEN: ANMCBO; ISSN: 0003-3146

DOCUMENT TYPE: Journal
 LANGUAGE: German

IT 28454-10-6P 28454-11-7P 28454-16-2P
 28454-20-8P
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (preparation of)

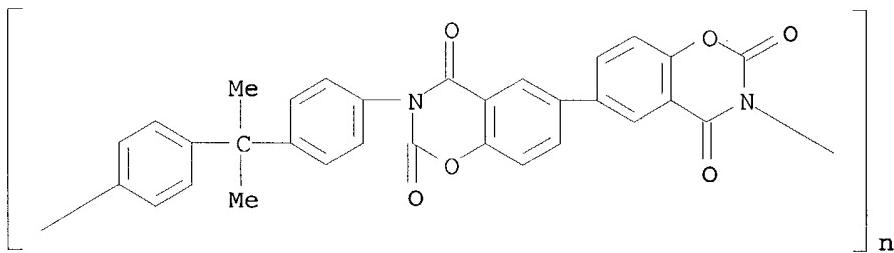
RN 28454-10-6 CAPLUS

CN Poly[(2,2',4,4'-tetraoxo[6,6'-bi-2H-1,3-benzoxazine]-3,3' (4H,4'H)-diyl)-1,4-phenyleneoxy-1,4-phenylene] (9CI) (CA INDEX NAME)



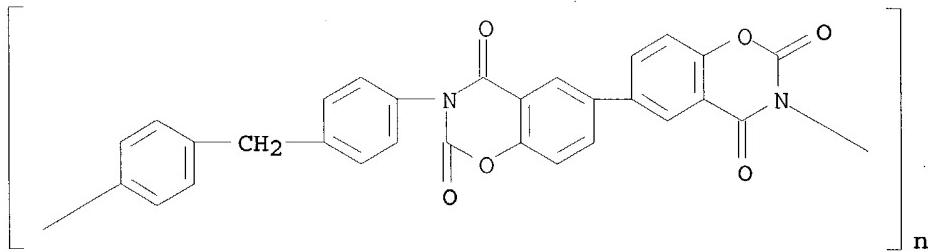
RN 28454-11-7 CAPLUS

CN Poly[(2,2',4,4'-tetraoxo[6,6'-bi-2H-1,3-benzoxazine]-3,3' (4H,4'H)-diyl)-1,4-phenylene(1-methylethyldene)-1,4-phenylene] (9CI) (CA INDEX NAME)



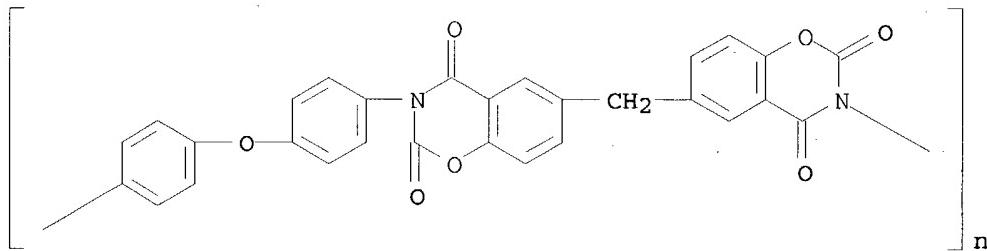
RN 28454-16-2 CAPLUS

CN Poly[(2,2',4,4'-tetraoxo[6,6'-bi-2H-1,3-benzoxazine]-3,3'(4H,4'H)-diyl)-1,4-phenylenemethylene-1,4-phenylene] (9CI) (CA INDEX NAME)



RN 28454-20-8 CAPLUS

CN Poly[(2,4-dioxo-2H-1,3-benzoxazine-3,6(4H)-diyl)methylene(2,4-dioxo-2H-1,3-benzoxazine-6,3(4H)-diyl)-1,4-phenyleneoxy-1,4-phenylene] (9CI) (CA INDEX NAME)



=> d 15 abs ibib hitstr 15

L5 ANSWER 15 OF 15 CAPLUS COPYRIGHT 2004 ACS on STN

GI For diagram(s), see printed CA Issue.

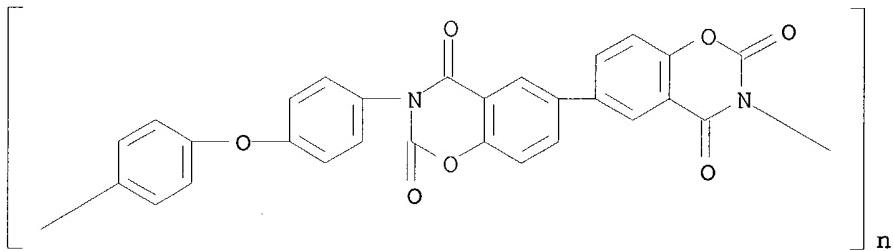
AB The title compds. with excellent heat stability and aging resistance, are prepared by treating a di-o-hydroxyarenedicarboxylate with a diisocyanate in the presence of a tertiary amine. Thus, to a solution of 18.25 parts diphenyl ether 4,4'-diisocyanate in 431 parts anhydrous Me₂SO, 25.35 parts di-Ph resorcinol-4,6-dicarboxylate (II) was added, the mixture refluxed 3 hrs. at 105° in the presence of 0.02 part triethylenediamine, diluted with an equal volume Me₂SO and ethylene chloride, filtered in vacuo, and the fine powder separated, washed with MeOH, and dried in vacuo at 100° to give I with a relative viscosity 2.9 (1%, HCONMe₂, 25°). I was converted into transparent and colorless films having a tensile strength 1000 kg./cm.² and elongation 70%. Other diisocyanates used were tolylene

10/633,890 searched 12-3-04

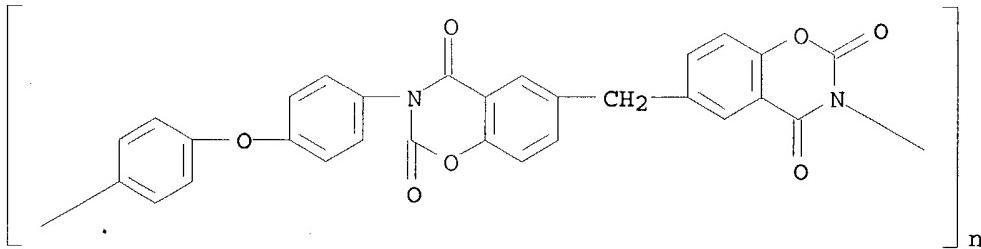
2,4-diisocyanate and naphthylene 1,5-diisocyanate. Di-Ph hydroquinone-2,5-dicarboxylate, di-Ph 4,4'-dihydroxybiphenyl-3,3'-dicarboxylate, di-Ph 4,4'-dihydroxydiphenylmethane-3,3'-dicarboxylate, and di-Ph 4,4'-dihydroxy-3,3'-dimethyldiphenylmethane-5,5-dicarboxylate were used instead of II.

ACCESSION NUMBER: 1969:4810 CAPLUS
DOCUMENT NUMBER: 70:4810
TITLE: 2H-1,3-Benzoxazine-2,4(3H)-dione aromatic polymers
PATENT ASSIGNEE(S): Farbenfabriken Bayer A.-G.
SOURCE: Fr., 5 pp.
CODEN: FRXXAK
DOCUMENT TYPE: Patent
LANGUAGE: French
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|--|------|----------|-----------------|----------|
| FR 1507149 | | 19671222 | | |
| DE 1595579 | | | DE | |
| GB 1173608 | | | GB | |
| US 3510454 | | 19700000 | US | |
| PRIORITY APPLN. INFO.: | | | DE | 19660103 |
| IT 28454-10-6P 28454-20-8P 28700-14-3P | | | | |
| RL: PREP (Preparation) | | | | |
| (preparation of) | | | | |
| RN 28454-10-6 CAPLUS | | | | |
| CN Poly[(2,2',4,4'-tetraoxo[6,6'-bi-2H-1,3-benzoxazine]-3,3'(4H,4'H)-diyl)-1,4-phenyleneoxy-1,4-phenylene] (9CI) (CA INDEX NAME) | | | | |

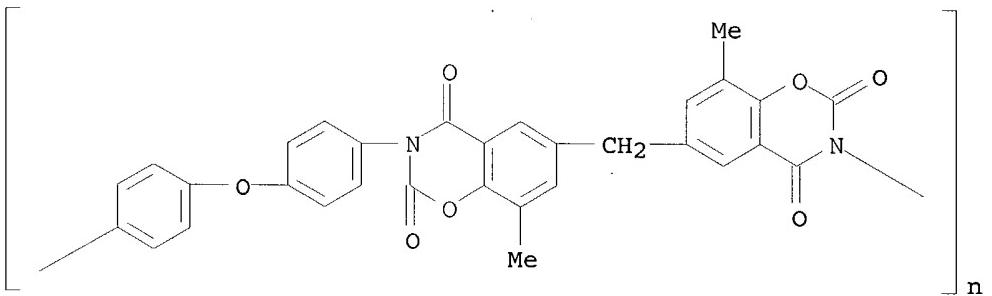


RN 28454-20-8 CAPLUS
CN Poly[(2,4-dioxo-2H-1,3-benzoxazine-3,6(4H)-diyl)methylene(2,4-dioxo-2H-1,3-benzoxazine-6,3(4H)-diyl)-1,4-phenyleneoxy-1,4-phenylene] (9CI) (CA INDEX NAME)



RN 28700-14-3 CAPLUS
CN Poly[(8-methyl-2,4-dioxo-2H-1,3-benzoxazine-3,6(4H)-diyl)methylene(8-methyl-2,4-dioxo-2H-1,3-benzoxazine-6,3(4H)-diyl)-1,4-phenyleneoxy-1,4-phenylene] (9CI) (CA INDEX NAME)

10/633, 890 searched 12-3-04



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| FULL ESTIMATED COST | 73.16 | 311.13 |
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| CA SUBSCRIBER PRICE | -10.50 | -10.50 |

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NEWS 4 SEP 01 New pricing for the Save Answers for SciFinder Wizard within
STN Express with Discover!
NEWS 5 SEP 01 New display format, HITSTR, available in WPIDS/WPINDEX/WPIX
NEWS 6 SEP 27 STANDARDS will no longer be available on STN

10/633,890 searched 12-3-04

NEWS 7 SEP 27 SWETSCAN will no longer be available on STN
NEWS 8 OCT 28 KOREAPAT now available on STN
NEWS 9 NOV 18 Current-awareness alerts, saved answer sets, and current search transcripts to be affected by CERAB, COMPUAB, ELCOM, and SOLIDSTATE reloads
NEWS 10 NOV 30 PHAR reloaded with additional data
NEWS 11 DEC 01 LISA now available on STN

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DICTIONARY FILE UPDATES: 1 DEC 2004 HIGHEST RN 791553-15-6

TSCA INFORMATION NOW CURRENT THROUGH MAY 21, 2004

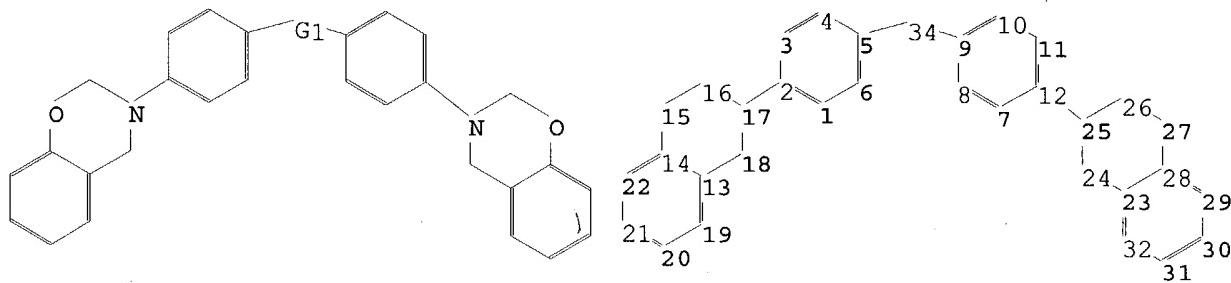
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<http://www.cas.org/ONLINE/DBSS/registryss.html>

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Uploading C:\Program Files\Stnexp\Queries\10412126.b.str

10/633,890 searched 12-3-04



chain nodes :

34

ring nodes :

| | | | | | | | | | | | | | | | | | | | | | | |
|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
| 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | | | | | | | | | | | | | | |

chain bonds :

2-17 5-34 9-34 12-25

ring bonds :

| | | | | | | | | | | | | | | | | | | | | | | |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--|--|--|--|--|--|--|--|--|
| 1-2 | 1-6 | 2-3 | 3-4 | 4-5 | 5-6 | 7-8 | 7-12 | 8-9 | 9-10 | 10-11 | 11-12 | 13-14 | 13-18 | | | | | | | | | |
| 13-19 | 14-15 | 14-22 | 15-16 | 16-17 | 17-18 | 19-20 | 20-21 | 21-22 | 23-24 | 23-28 | 23-32 | | | | | | | | | | | |
| 24-25 | 25-26 | 26-27 | 27-28 | 28-29 | 29-30 | 30-31 | 31-32 | | | | | | | | | | | | | | | |

exact/norm bonds :

| | | | | | | | | | | | | | | | | | | | | | | | |
|-------|-------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--|--|--|--|--|--|--|--|--|--|--|--|
| 2-17 | 5-34 | 9-34 | 12-25 | 13-18 | 14-15 | 15-16 | 16-17 | 17-18 | 23-24 | 24-25 | 25-26 | | | | | | | | | | | | |
| 26-27 | 27-28 | | | | | | | | | | | | | | | | | | | | | | |

normalized bonds :

| | | | | | | | | | | | | | | | | | | | | | | | |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--|--|--|--|--|--|--|--|--|--|
| 1-2 | 1-6 | 2-3 | 3-4 | 4-5 | 5-6 | 7-8 | 7-12 | 8-9 | 9-10 | 10-11 | 11-12 | 13-14 | 13-19 | | | | | | | | | | |
| 14-22 | 19-20 | 20-21 | 21-22 | 23-28 | 23-32 | 28-29 | 29-30 | 30-31 | 31-32 | | | | | | | | | | | | | | |

G1:O,S,SO2,Ak

Match level :

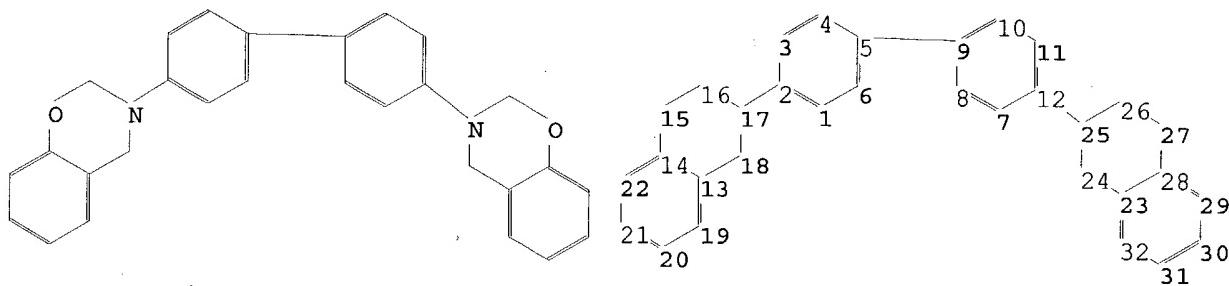
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|---------|---------|---------|---------|----------|---------|---------|---------|---------|---------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| 1:Atom | 2:Atom | 3:Atom | 4:Atom | 5:Atom | 6:Atom | 7:Atom | 8:Atom | 9:Atom | 10:Atom | | | | | | | | | | | | | | | |
| 11:Atom | 12:Atom | 13:Atom | 14:Atom | 15:Atom | 16:Atom | 17:Atom | 18:Atom | 19:Atom | | | | | | | | | | | | | | | | |
| 20:Atom | 21:Atom | 22:Atom | 23:Atom | 24:Atom | 25:Atom | 26:Atom | 27:Atom | 28:Atom | | | | | | | | | | | | | | | | |
| 29:Atom | 30:Atom | 31:Atom | 32:Atom | 34:CLASS | | | | | | | | | | | | | | | | | | | | |

L1 STRUCTURE UPLOADED

=>

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10/633,890 searched 12-3-04



ring nodes :

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
24 25 26 27 28 29 30 31 32

chain bonds :

2-17 5-9 12-25

ring bonds :

1-2 1-6 2-3 3-4 4-5 5-6 7-8 7-12 8-9 9-10 10-11 11-12 13-14 13-18
13-19 14-15 14-22 15-16 16-17 17-18 19-20 20-21 21-22 23-24 23-28 23-32
24-25 25-26 26-27 27-28 28-29 29-30 30-31 31-32

exact/norm bonds :

2-17 12-25 13-18 14-15 15-16 16-17 17-18 23-24 24-25 25-26 26-27 27-28

exact bonds :

5-9

normalized bonds :

1-2 1-6 2-3 3-4 4-5 5-6 7-8 7-12 8-9 9-10 10-11 11-12 13-14 13-19
14-22 19-20 20-21 21-22 23-28 23-32 28-29 29-30 30-31 31-32

Match level :

1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom 9:Atom 10:Atom
11:Atom 12:Atom 13:Atom 14:Atom 15:Atom 16:Atom 17:Atom 18:Atom 19:Atom
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29:Atom 30:Atom 31:Atom 32:Atom

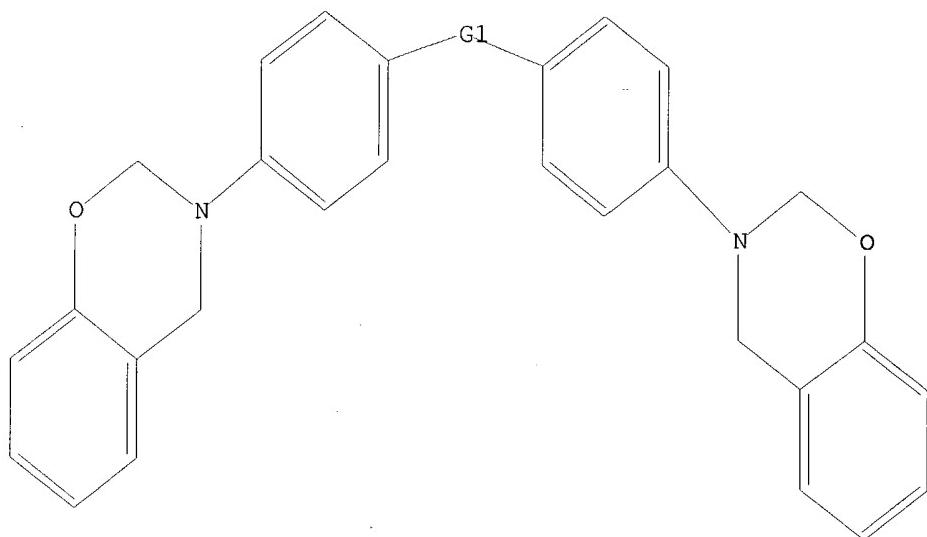
L2 STRUCTURE UPLOADED

=> d 11

L1 HAS NO ANSWERS

L1 STR

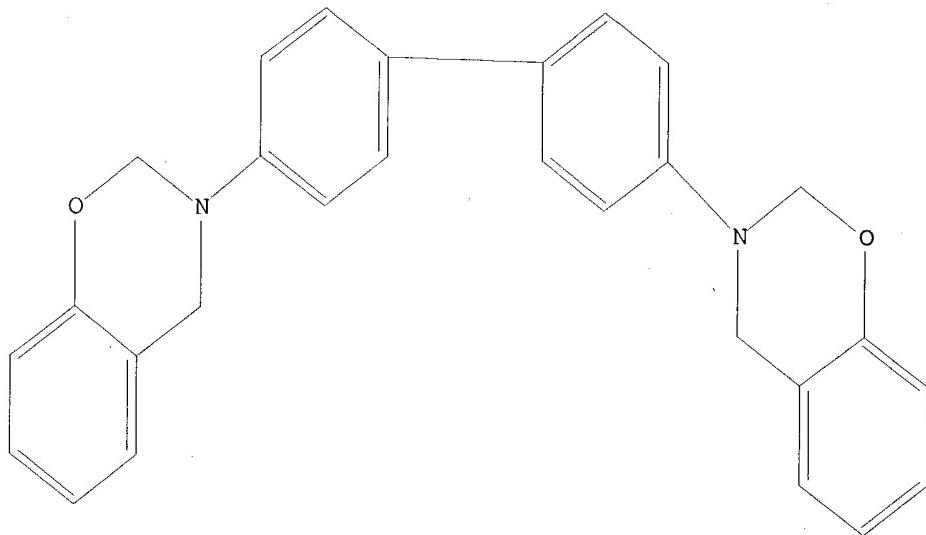
10/633,890 searched 12-3-04



G1 O, S, SO₂, Ak

Structure attributes must be viewed using STN Express query preparation.

=> d 12
L2 HAS NO ANSWERS
L2 STR



Structure attributes must be viewed using STN Express query preparation.

=> s full (11 or 12)
FULL SEARCH INITIATED 11:22:02 FILE 'REGISTRY'
FULL SCREEN SEARCH COMPLETED - 784 TO ITERATE

100.0% PROCESSED 784 ITERATIONS
SEARCH TIME: 00.00.01

23 ANSWERS

10/633,890 searched 12-3-04

L3 23 SEA SSS FUL (L1 OR L2)

=> file caplus

COST IN U.S. DOLLARS
FULL ESTIMATED COST

| SINCE FILE ENTRY | TOTAL SESSION |
|------------------|---------------|
| 236.92 | 237.13 |

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FILE LAST UPDATED: 1 Dec 2004 (20041201/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> s l3 and (epox? or polyepox? or diepox? or polyglycidyl? or diglycidyl? or ?glycidylether or glycidylether?)

15 L3

291602 EPOX?

4351 POLYEPOX?

5825 DIEPOX?

2168 POLYGLYCIDYL?

16680 DIGLYCIDYL?

237 ?GLYCIDYLETHER

36 GLYCIDYLETHER?

L4 5 L3 AND (EPOX? OR POLYEPOX? OR DIEPOX? OR POLYGLYCIDYL? OR DIGLYC IDYL? OR ?GLYCIDYLETHER OR GLYCIDYLETHER?)

=> s l4 and phosph?

1629896 PHOSPH?

L5 1 L4 AND PHOSPH?

=> d 15 abs ibib hitstr

L5 ANSWER 1 OF 1 CAPLUS COPYRIGHT 2004 ACS on STN

AB The title resins contain thermosetting compds. containing 1-oxa-3-azatetralin groups and immiscible fireproofing agents. Curing a mixture of 3,3'-(Methylenedi-p-phenylene)bis(3,4-dihydro-1,3-benzoxazine) 30, Al(OH)3 10, and glass fabric (110 g/m²) 10 parts at 200° gave a 0.9-mm plate with UL-94 flammability rating V-1.

ACCESSION NUMBER: 1990:441934 CAPLUS

DOCUMENT NUMBER: 113:41934

TITLE: Fire- and heat-resistant plastics and their preparation

INVENTOR(S): Schreiber, Herbert; Saur, Wolfgang

PATENT ASSIGNEE(S): Gurit-Essex A.-G., Switz.

SOURCE: Eur. Pat. Appl., 10 pp.

CODEN: EPXXDW

DOCUMENT TYPE:

Patent

LANGUAGE:

German

FAMILY ACC. NUM. COUNT:

1

PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|------|----------|-----------------|------------|
| EP 356379 | A1 | 19900228 | EP 1989-810514 | 19890706 |
| EP 356379 | B1 | 19960320 | | |
| R: AT, BE, CH, DE, ES, FR, GB, GR, IT, LI, LU, NL, SE | | | | |
| CH 675248 | A | 19900914 | CH 1988-2733 | 19880718 |
| CH 678531 | A | 19910930 | CH 1989-2383 | 19890627 |
| AT 135724 | E | 19960415 | AT 1989-810514 | 19890706 |
| ES 2088905 | T3 | 19961001 | ES 1989-810514 | 19890706 |
| US 5021484 | A | 19910604 | US 1989-376875 | 19890707 |
| CA 1338298 | A1 | 19960430 | CA 1989-605649 | 19890711 |
| AU 8938067 | A1 | 19900118 | AU 1989-38067 | 19890713 |
| AU 615557 | B2 | 19911003 | | |
| CN 1039602 | A | 19900214 | CN 1989-106065 | 19890718 |
| CN 1019810 | B | 19921230 | | |
| JP 02069567 | A2 | 19900308 | JP 1989-183852 | 19890718 |
| JP 2952419 | B2 | 19990927 | | |
| DD 284036 | A5 | 19901031 | DD 1989-330942 | 19890718 |
| KR 130970 | B1 | 19980413 | KR 1989-10212 | 19890718 |
| ZA 8905222 | A | 19900425 | ZA 1989-5222 | 19890719 |
| PRIORITY APPLN. INFO.: | | | CH 1988-2733 | A 19880718 |
| | | | CH 1989-2383 | A 19890627 |

IT 127959-99-3

RL: USES (Uses)

(fire- and heat-resistant, compns. of)

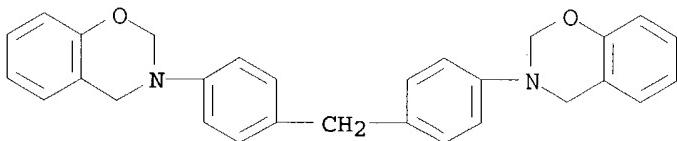
RN 127959-99-3 CAPLUS

CN 2H-1,3-Benzoxazine, 3,3'-(methylenedi-4,1-phenylene)bis[3,4-dihydro-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 127959-98-2

CMF C29 H26 N2 O2



IT 127960-00-3 127960-04-7 127960-05-8

RL: USES (Uses)

(fire- and heat-resistant, formulation of)

RN 127960-00-3 CAPLUS

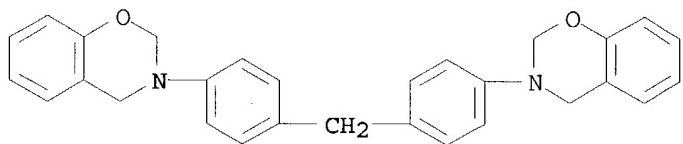
CN 2H-1,3-Benzoxazine, 3,3'-(methylenedi-4,1-phenylene)bis[3,4-dihydro-, polymer with 2,2'-(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bis[oxirane] (9CI) (CA INDEX NAME)

CM 1

CRN 127959-98-2

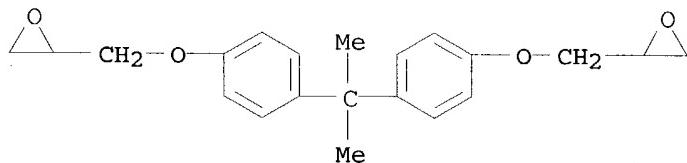
CMF C29 H26 N2 O2

10/633,890 searched 12-3-04



CM 2

CRN 1675-54-3
CMF C21 H24 O4

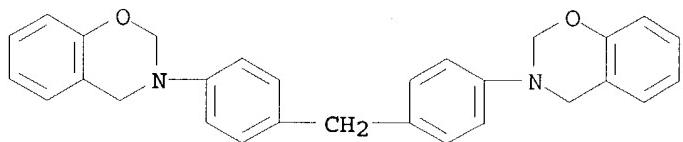


RN 127960-04-7 CAPLUS

CN 7-Oxabicyclo[4.1.0]heptane-3-carboxylic acid, 7-oxabicyclo[4.1.0]hept-3-ylmethyl ester, polymer with 3,3'-(methylenedi-4,1-phenylene)bis[3,4-dihydro-2H-1,3-benzoxazine] (9CI) (CA INDEX NAME)

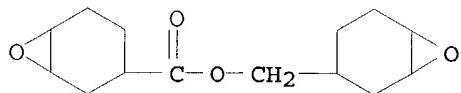
CM 1

CRN 127959-98-2
CMF C29 H26 N2 O2



CM 2

CRN 2386-87-0
CMF C14 H20 O4

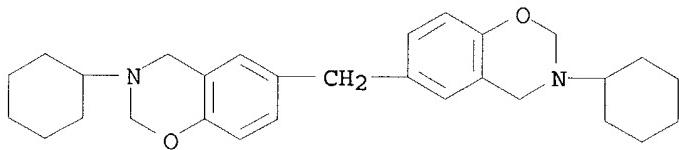


RN 127960-05-8 CAPLUS

CN 2H-1,3-Benzoxazine, 6,6'-(methylene)bis[3-cyclohexyl-3,4-dihydro-, polymer with 3,3'-(methylenedi-4,1-phenylene)bis[3,4-dihydro-2H-1,3-benzoxazine] (9CI) (CA INDEX NAME)

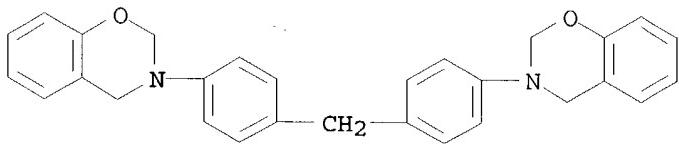
CM 1

CRN 127960-01-4
CMF C29 H38 N2 O2



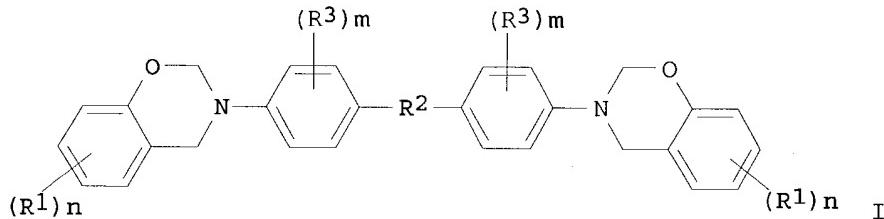
CM 2

CRN 127959-98-2
CMF C29 H26 N2 O2



=> d 14 abs ibib hitstr 1-5

L4 ANSWER 1 OF 5 CAPLUS COPYRIGHT 2004 ACS on STN
GI

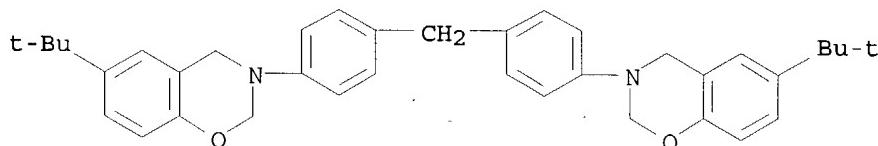


AB Disclosed are benzoxazine compds. I (R1 = alkyl, alkenyl, alkoxy, OH, halo, or amino; R2 = single bond, alkylene, O, S, or SO2; R3 = H or C1-6 alkyl; m = 0-4; n = 1-4) and a method for preparing the same. These compds. are prepared by the reaction of a phenolic compound, an aromatic diamine compound, and HCHO or paraformaldehyde. I are useful for crosslinking epoxy resins to give products with low water absorption.

ACCESSION NUMBER: 2004:293427 CAPLUS
DOCUMENT NUMBER: 140:304721
TITLE: Benzoxazine derivatives and method of preparing the same
INVENTOR(S): Hwang, Kuen-yuan; Tu, An-pang; Liao, Shyh Haw
PATENT ASSIGNEE(S): Taiwan
SOURCE: U.S. Pat. Appl. Publ., 15 pp.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

10/633,890 searched 12-3-04

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|------------------------|---|-------------------|------------------|------------|
| US 2004068084 | A1 | 20040408 | US 2003-630195 | 20030729 |
| JP 2004123703 | A2 | 20040422 | JP 2003-169185 | 20030613 |
| JP 2004123742 | A2 | 20040422 | JP 2003-337382 | 20030929 |
| PRIORITY APPLN. INFO.: | | | TW 2002-91122816 | A 20021003 |
| OTHER SOURCE(S): | | MARPAT 140:304721 | | |
| IT | 676547-37-8P, PF 3900M60 | | | |
| RL: | IMF (Industrial manufacture); MOA (Modifier or additive use); PREP (Preparation); USES (Uses) | | | |
| | (PF 3900M60; benzoxazine derivs. from formaldehyde, bisaniline derivs., substituted phenols for crosslinking agents for epoxy resins providing products with low water absorption) | | | |
| RN | 676547-37-8 CAPPLUS | | | |
| CN | 2H-1,3-Benzoxazine, 3,3'-(methylenedi-4,1-phenylene)bis[6-(1,1-dimethylethyl)-3,4-dihydro- (9CI) (CA INDEX NAME) | | | |



IT 677006-41-6P 677006-42-7P
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(benzoxazine derivs. from formaldehyde, bisaniline derivs., substituted phenols for crosslinking agents for **epoxy** resins providing products with low water absorption)
RN 677006-41-6 CAPPLUS
CN 2H-1,3-Benzoxazine, 3,3'-(methylenedi-4,1-phenylene)bis[6-(1,1-dimethylethyl)-3,4-dihydro-, polymer with BEB 580A75 and TNE 190A70 (9CI) (CA INDEX NAME)

CM 1

CRN 677005-87-7
CMF Unspecified
CCI PMS, MAN

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CM 2

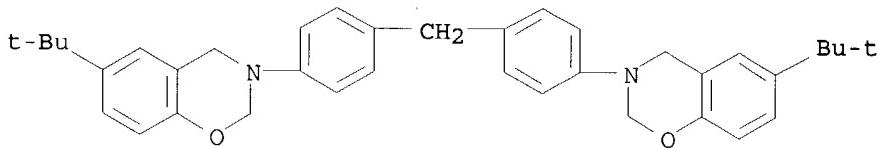
CRN 677005-85-5
CMF Unspecified
CCI PMS, MAN

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CM 3

CRN 676547-37-8
CMF C37 H42 N2 O2

10/633,890 searched 12-3-04



RN 677006-42-7 CAPLUS

CN 2H-1,3-Benzoxazine, 3,3'-(methylenedi-4,1-phenylene)bis[6-(1,1-dimethylpropyl)-3,4-dihydro-, polymer with 2,2'-(1-methylpropylidene)bis[(2,6-dibromo-4,1-phenylene)oxymethylene]]bis[oxirane] and TNE 190A70 (9CI) (CA INDEX NAME)

CM 1

CRN 677005-87-7

CMF Unspecified

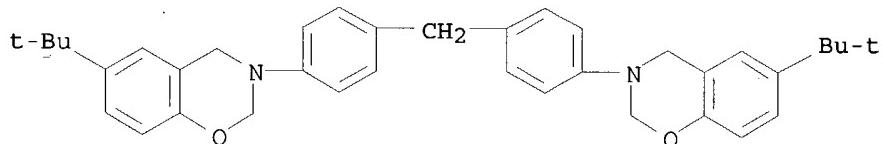
CCI PMS, MAN

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CM 2

CRN 676547-37-8

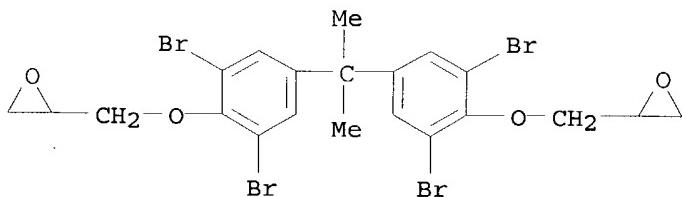
CMF C37 H42 N2 O2



CM 3

CRN 3072-84-2

CMF C21 H20 Br4 O4



IT 677006-43-8P 677006-44-9P

RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(control crosslinked material; benzoxazine derivs. from formaldehyde, bisaniline derivs., substituted phenols for crosslinking agents for epoxy resins providing products with low water absorption)

RN 677006-43-8 CAPLUS

CN 2H-1,3-Benzoxazine, 3,3'-(methylenedi-4,1-phenylene)bis[3,4-dihydro-, polymer with BEB 580A75 and TNE 190A70 (9CI) (CA INDEX NAME)

CM 1

10/633,890 searched 12-3-04

CRN 677005-87-7
CMF Unspecified
CCI PMS, MAN

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

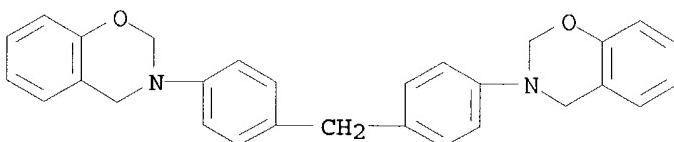
CM 2

CRN 677005-85-5
CMF Unspecified
CCI PMS, MAN

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CM 3

CRN 127959-98-2
CMF C29 H26 N2 O2



RN 677006-44-9 CAPLUS

CN 2H-1,3-Benzoxazine, 3,3'-(methylenedi-4,1-phenylene)bis[3,4-dihydro-, polymer with 2,2'-(1-methylethylidene)bis[(2,6-dibromo-4,1-phenylene)oymethylene]]bis[oxirane] and TNE 190A70 (9CI) (CA INDEX NAME)

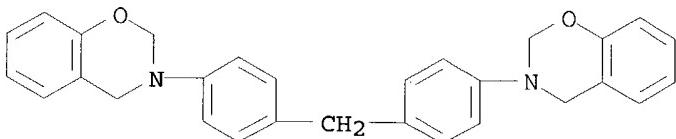
CM 1

CRN 677005-87-7
CMF Unspecified
CCI PMS, MAN

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

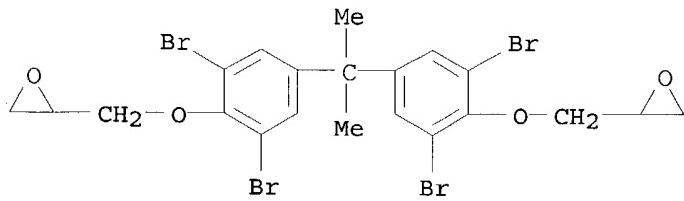
CM 2

CRN 127959-98-2
CMF C29 H26 N2 O2



CM 3

CRN 3072-84-2
CMF C21 H20 Br4 O4

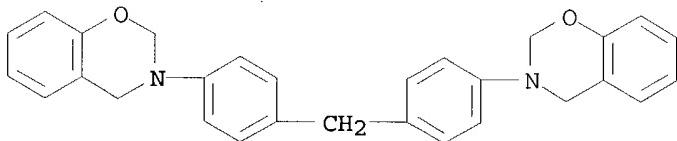


IT 127959-98-2P

RL: IMF (Industrial manufacture); MOA (Modifier or additive use); PREP (Preparation); USES (Uses)
(control crosslinker; benzoxazine derivs. from formaldehyde, bisaniline derivs., substituted phenols for crosslinking agents for **epoxy** resins providing products with low water absorption)

RN 127959-98-2 CAPLUS

CN 2H-1,3-Benzoxazine, 3,3'-(methylenedi-4,1-phenylene)bis[3,4-dihydro- (9CI)
(CA INDEX NAME)]



L4 ANSWER 2 OF 5 CAPLUS COPYRIGHT 2004 ACS on STN

AB Applications of benzoxazines as ablative resins were studied in this paper. Char yields of four kinds of cured benzoxazine precursors were measured by TGA and the data showed that the char yields of multi-benzoxazine PBOZ precursors and di-benzoxazine MDABOZ, DRBOZ precursors were higher than 60%, but that of mono-benzoxazine ;SRBOZ precursors was relatively low. By introducing MDABOZ, DRBOZ and APPFBOZ precursors into SRBOZ resin system, resultant char yield was remarkably raised over 60%,and viscosity of the resin systems was still low. Small generator ablation tests indicated that cured PBOZ precursors exhibited good ablation-resistance and cured SRBOZ resin system modified by di-benzoxazine MDABOZ precursors, with low viscosity, was upgraded substantially in its ablation-resistance.

ACCESSION NUMBER: 2002:252636 CAPLUS

DOCUMENT NUMBER: 137:170195

TITLE: Primary investigation on ablative properties of benzoxazine resins

AUTHOR(S): Ji, Fenglong; Gu, Yi; Xie, Meili; Luo, Yongkang; Yu, Chunan; Cai, Jianqiang

CORPORATE SOURCE: College of Polymer Science and Engineering, Natl. Key Lab. for Polymer Engineering, Sichuan University, Chengdu, 610065, Peop. Rep. China

SOURCE: Yuhang Cailiao Gongyi (2002), 32(1), 25-29
CODEN: YCGOFH; ISSN: 1007-2330

PUBLISHER: Yuhang Cailiao Gongyi Bianjibu

DOCUMENT TYPE: Journal

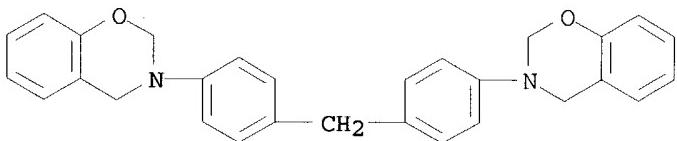
LANGUAGE: Chinese

IT 127959-98-2D, polymers

RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PROC (Process); USES (Uses)
(primary investigation on ablative properties of benzoxazine resins)

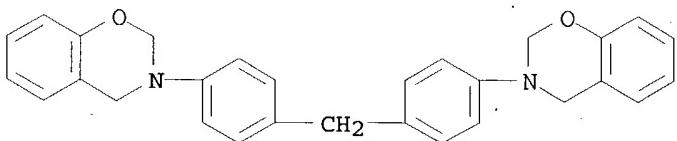
RN 127959-98-2 CAPLUS

CN 2H-1,3-Benzoxazine, 3,3'-(methylenedi-4,1-phenylene)bis[3,4-dihydro- (9CI)
(CA INDEX NAME)]



L4 ANSWER 3 OF 5 CAPLUS COPYRIGHT 2004 ACS on STN
 AB Adhesives for the title films contain thermosetting oxazine polymers having ≥ 1 1-oxa-3-azatetralin group in the mol., alone or in combination with a curable **epoxy** resin. Thus, a 0.035-mm Cu foil was attached to 0.02-mm Kapton film by means of a 67:33 N,N-methylenedi-p-phenylenebis(benzoxazine)-3,4-**epoxycyclohexylmethyl 3,4-epoxycyclohexanecarboxylate** composition and pressed 1 h at 200°. The tear strength was 3.8 N/mm.
 ACCESSION NUMBER: 1992:107765 CAPLUS
 DOCUMENT NUMBER: 116:107765
 TITLE: Gluing of polyimide films and circuit boards therefore
 INVENTOR(S): Schreiber, Herbert; Saur, Wolfgang
 PATENT ASSIGNEE(S): Gurit-Essex A.-G., Switz.
 SOURCE: Ger., 6 pp.
 CODEN: GWXXAW
 DOCUMENT TYPE: Patent
 LANGUAGE: German
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|--|------|----------|-----------------|----------|
| DE 4016548 | C1 | 19910912 | DE 1990-4016548 | 19900523 |
| EP 458740 | A1 | 19911127 | EP 1991-810320 | 19910426 |
| R: AT, BE, CH, DE, ES, FR, GB, IT, LI, NL, SE | | | | |
| CA 2042153 | AA | 19911124 | CA 1991-2042153 | 19910509 |
| ZA 9103626 | A | 19920226 | ZA 1991-3626 | 19910514 |
| JP 04227936 | A2 | 19920818 | JP 1991-114852 | 19910520 |
| US 5176780 | A | 19930105 | US 1991-703194 | 19910520 |
| AU 9177265 | A1 | 19920102 | AU 1991-77265 | 19910523 |
| PRIORITY APPLN. INFO.: | | | DE 1990-4016548 | 19900523 |
| IT 127959-98-2 | | | | |
| RL: USES (Uses) | | | | |
| (adhesive compns. containing, for polyimide films and metal foils, in circuit board manufacture) | | | | |
| RN 127959-98-2 CAPLUS | | | | |
| CN 2H-1,3-Benzoxazine, 3,3'-(methylenedi-4,1-phenylene)bis[3,4-dihydro- (9CI) (CA INDEX NAME) | | | | |



L4 ANSWER 4 OF 5 CAPLUS COPYRIGHT 2004 ACS on STN
 AB The title resins are prepared from $\geq 70\%$ 1-oxa-3-azatetralins and $\leq 30\%$ halogenated **epoxy** resins. Thus, a composition of 3,3'-(methylenedi-p-phenylene)bis(1-oxa-3-azatetralin) 90, brominated **epoxy** resin 10, and glass fibers 9 parts gave moldings with UL-94

10/633,890 searched 12-3-04

flammability rating V-0 (1st and 2nd burning time 4.0 and 48 s, resp.);
vs. complete burning without the **epoxy** resin.

ACCESSION NUMBER: 1991:681359 CAPLUS
DOCUMENT NUMBER: 115:281359
TITLE: Flame- and/or heat-resistant thermosetting resin preparation
INVENTOR(S): Schreiber, Herbert; Burkart, Guenter; Knaus, Bruno
PATENT ASSIGNEE(S): Gurit-Essex A.-G., Switz.
SOURCE: Ger., 11 pp.
CODEN: GWXXAW
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

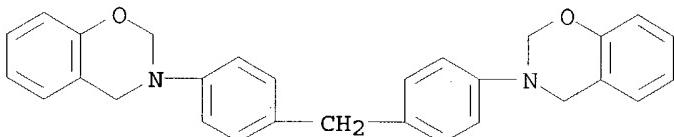
| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|------|----------|-----------------|-------------|
| DE 4016296 | C1 | 19910905 | DE 1990-4016296 | 19900521 |
| EP 458739 | A2 | 19911127 | EP 1991-810319 | 19910426 |
| EP 458739 | A3 | 19930901 | | |
| R: AT, BE, CH, DE, ES, FR, GB, IT, LI, NL, SE | | | | |
| ZA 9103434 | A | 19920226 | ZA 1991-3434 | 19910507 |
| CA 2042840 | AA | 19911122 | CA 1991-2042840 | 19910517 |
| CA 2042840 | C | 19961126 | | |
| JP 04227922 | A2 | 19920818 | JP 1991-114850 | 19910520 |
| JP 3203385 | B2 | 20010827 | | |
| AU 9177213 | A1 | 19911121 | AU 1991-77213 | 19910521 |
| AU 636226 | B2 | 19930422 | | |
| US 5443911 | A | 19950822 | US 1993-150975 | 19931112 |
| PRIORITY APPLN. INFO.: | | | DE 1990-4016296 | A 19900521 |
| | | | US 1991-703193 | B2 19910520 |

IT 127959-98-2

RL: USES (Uses)
(in fire- and heat-resistant halogenated **epoxy** resin moldings)

RN 127959-98-2 CAPLUS

CN 2H-1,3-Benzoxazine, 3,3'-(methylenedi-4,1-phenylene)bis[3,4-dihydro- (9CI)
(CA INDEX NAME)



L4 ANSWER 5 OF 5 CAPLUS COPYRIGHT 2004 ACS on STN

AB The title resins contain thermosetting compds. containing 1-oxa-3-azatetralin groups and immiscible fireproofing agents. Curing a mixture of 3,3'-(Methylenedi-p-phenylene)bis(3,4-dihydro-1,3-benzoxazine) 30, Al(OH)3 10, and glass fabric (110 g/m²) 10 parts at 200° gave a 0.9-mm plate with UL-94 flammability rating V-1.

ACCESSION NUMBER: 1990:441934 CAPLUS
DOCUMENT NUMBER: 113:41934
TITLE: Fire- and heat-resistant plastics and their preparation
INVENTOR(S): Schreiber, Herbert; Saur, Wolfgang
PATENT ASSIGNEE(S): Gurit-Essex A.-G., Switz.
SOURCE: Eur. Pat. Appl., 10 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent

10/633,890 searched 12-3-04

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|------|----------|-----------------|------------|
| EP 356379 | A1 | 19900228 | EP 1989-810514 | 19890706 |
| EP 356379 | B1 | 19960320 | | |
| R: AT, BE, CH, DE, ES, FR, GB, GR, IT, LI, LU, NL, SE | | | | |
| CH 675248 | A | 19900914 | CH 1988-2733 | 19880718 |
| CH 678531 | A | 19910930 | CH 1989-2383 | 19890627 |
| AT 135724 | E | 19960415 | AT 1989-810514 | 19890706 |
| ES 2088905 | T3 | 19961001 | ES 1989-810514 | 19890706 |
| US 5021484 | A | 19910604 | US 1989-376875 | 19890707 |
| CA 1338298 | A1 | 19960430 | CA 1989-605649 | 19890711 |
| AU 8938067 | A1 | 19900118 | AU 1989-38067 | 19890713 |
| AU 615557 | B2 | 19911003 | | |
| CN 1039602 | A | 19900214 | CN 1989-106065 | 19890718 |
| CN 1019810 | B | 19921230 | | |
| JP 02069567 | A2 | 19900308 | JP 1989-183852 | 19890718 |
| JP 2952419 | B2 | 19990927 | | |
| DD 284036 | A5 | 19901031 | DD 1989-330942 | 19890718 |
| KR 130970 | B1 | 19980413 | KR 1989-10212 | 19890718 |
| ZA 8905222 | A | 19900425 | ZA 1989-5222 | 19890719 |
| PRIORITY APPLN. INFO.: | | | CH 1988-2733 | A 19880718 |
| | | | CH 1989-2383 | A 19890627 |

IT 127959-99-3

RL: USES (Uses)
(fire- and heat-resistant, compns. of)

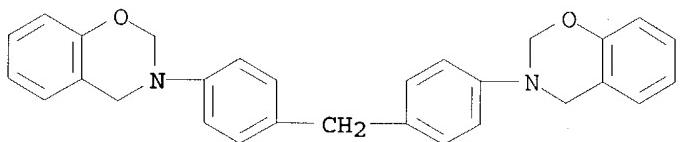
RN 127959-99-3 CAPLUS

CN 2H-1,3-Benzoxazine, 3,3'-(methylenedi-4,1-phenylene)bis[3,4-dihydro-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 127959-98-2

CMF C29 H26 N2 O2



IT 127960-00-3 127960-04-7 127960-05-8

RL: USES (Uses)
(fire- and heat-resistant, formulation of)

RN 127960-00-3 CAPLUS

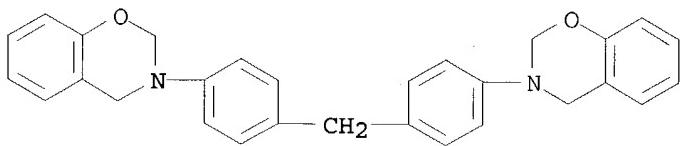
CN 2H-1,3-Benzoxazine, 3,3'-(methylenedi-4,1-phenylene)bis[3,4-dihydro-, polymer with 2,2'-(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bis[oxirane] (9CI) (CA INDEX NAME)

CM 1

CRN 127959-98-2

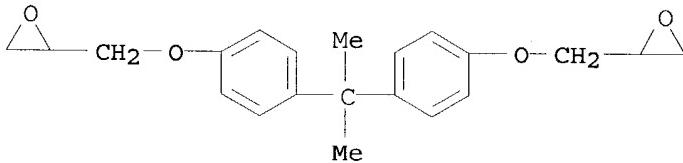
CMF C29 H26 N2 O2

10/633,890 searched 12-3-04



CM 2

CRN 1675-54-3
CMF C21 H24 O4

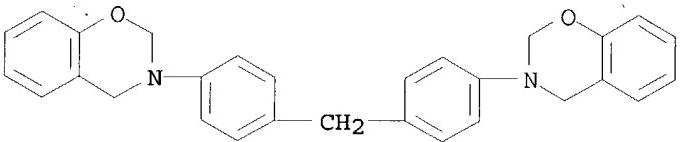


RN 127960-04-7 CAPLUS

CN 7-Oxabicyclo[4.1.0]heptane-3-carboxylic acid, 7-oxabicyclo[4.1.0]hept-3-ylmethyl ester, polymer with 3,3'-(methylenedi-4,1-phenylene)bis[3,4-dihydro-2H-1,3-benzoxazine] (9CI) (CA INDEX NAME)

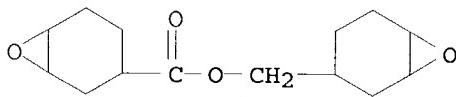
CM 1

CRN 127959-98-2
CMF C29 H26 N2 O2



CM 2

CRN 2386-87-0
CMF C14 H20 O4



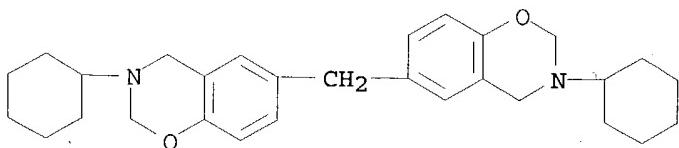
RN 127960-05-8 CAPLUS

CN 2H-1,3-Benzoxazine, 6,6'-methylenebis[3-cyclohexyl-3,4-dihydro-, polymer with 3,3'-(methylenedi-4,1-phenylene)bis[3,4-dihydro-2H-1,3-benzoxazine] (9CI) (CA INDEX NAME)

CM 1

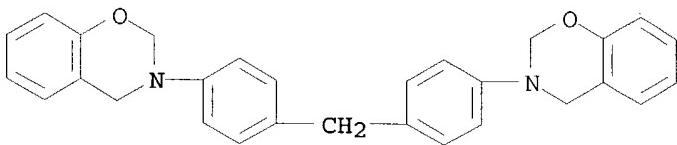
CRN 127960-01-4
CMF C29 H38 N2 O2

10/633, 890 searched 12-3-04



CM 2

CRN 127959-98-2
CMF C29 H26 N2 O2



=>

---Logging off of STN---

=>

Executing the logoff script...

=> LOG Y

COST IN U.S. DOLLARS

| SINCE FILE | TOTAL |
|------------|---------|
| ENTRY | SESSION |

FULL ESTIMATED COST

44.88 282.01

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)

| SINCE FILE | TOTAL |
|------------|---------|
| ENTRY | SESSION |

CA SUBSCRIBER PRICE

-4.20 -4.20

STN INTERNATIONAL LOGOFF AT 11:24:29 ON 03 DEC 2004